35 CENTS

CONSTRUCTION METHODS AND EQUIPMENT

April 1953





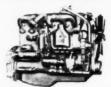
GIVE YOUR EQUIPMENT THESE MONEY-MAKING ADVANTAGES:



Install or specify Buda Dyna-Swirl Diesels in your scrapers, dozers, trucks and tractors and get the competitive edge these powerful. long-life engines can bring you. There's a Buda Diesel for every type of earthmoving and construction equipment. See your Buda Engine Distributor for complete details.

- \$ 12 to 18% MORE HORSEPOWER at normal operating speeds . . . more reserve power for heaped loads
- 10 to 17% more useable torque . . . greater lugging ability . . . less shifting . . . faster round trips
- 5 6000 or more operating hours between overhauls . . . lower cost per hour of operation
- **Exclusive Dyna-Swirl Combustion** .. more power per gallon of fuel ... lower fuel cost
- Smooth, quiet operation . . . less exhaust fumes and smoke . . . less vibration . . . greater operator comfort and efficiency

8-DAS-1125 Supercharged 350 HP at 2100 RPM



DAS-844 Supercharged 280 HP at 2100 RPM



6-DA-779



WRITE FOR BULLETIN 1526 + THE BUDA COMPANY, HARVEY, ILLINOIS





19 million tons in 8 years B. F. Goodrich belts still in service

Where you have heavy impact, long centers, high lifts, there's a special belt for your installation - the B. F. Goodrich cord conveyor belt.

Cord belts stand more impact -Each lengthwise cord in a B. F. Goodrich cord belt is completely surrounded by rubber - no cross threads tie them together. Cords are free to "give" when impact occurs. The rubber takes the shock. B. F. Goodrich developed this cord belt years ago, and has since made a number of improvements that make it first choice for many really tough jobs. One such improvement is "balanced construction." Now the layers of individual cords are built into both the top and bottom of the belt to give even greater impact resistance.

Cord belts trough better - There being no crossweave in the cord plies, cords are free to flex. Belt conforms to idlers, pulleys. Spillage is reduced, troughing is natural and belt keeps centered on idlers, sustains less damage, requires less maintenance. Longer centers, higher lifts can be used.

Cord belts at work - Inside the housing shown here, a 3,000 ft. B.F. Goodrich beltroad handles iron ore in one of the largest mines on the Minnesota Iron Range. Installed in 1944, this series of cord belts have already handled over 19 million tons. Estimated life is 6 more years, 11 mil-

Cord belts for tough jobs - If your belts must take severe impact on

loading, cutting and gouging at the loading chute, heavy loads with long centers and high lifts, you need B. F. Goodrich cord belts. Your local BFG distributor will show you how they can save you money, or write The B. F. Goodrich Company, Industrial & General Products Division, Akron, O. (Available in Canada)

... now it's better

the OLIVER Model "B" Crawler WITH WARE LOADER

Long considered the finest tractor-loader combination in its class, the Oliver-Ware Model "B" is now built for even greater performance. There are now 5 lower track wheels instead of 4, and the front idler wheel is considerably larger. This means you get more track on the ground, greater stability, more traction, easier handling all the way around. It means faster loading cycles, more work done per day, lower costs and more profits for you.

You still get the hydraulically-controlled Ware loader—designed and built exclusively

for the Oliver Model "B" Crawler. 110° bucket rotation and 28° "tilt back" give you a full bucket every time. Bucket level is automatically maintained when lifting load, preventing wasteful spillage. You can control speed of discharge. And, even with the "tilt back" action, you still have a 32° (from vertical) dump angle . . . a control range no other loader can surpass.

For complete information on how the Oliver-Ware Model "B" tractor loader can cut costs for you, see or write your Oliver Industrial Distributor.





THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, III.

A complete line of industrial wheel and crawler tractors



than ever!





STRONGER-THAN-STEEL FIBERGLAS

crowns offer unlimited choice of vivid, with color molded all the way thru the safest crowns ever built. Shock-resisting ribbed design also available in air. craft grade aluminum.

Full Color Circulat

SAVE MONEY

One size fits all heads . . re-... save time! duces inventories. Fully adjustable headband and hammock; can be changed in six seconds. Self-shaping and air. cushioned for comfort.



Distributors in principal cities

E. D. BULLARD COMPANY 275 EIGHTH STREET, SAN FRANCISCO, CALIFORNIA

ONSTRUCTION METHODS AND EQUIPMENT

Volume 35, Number 4

Electric Curtain Stabilizes Wet Ground

APRIL 1953

Established 1919

Pay Dirt in This Issue

	es fre	acherous wet soil into firm 21 ft deep without sheeting.	
	rds wi	th portable electric tools in e appliances, if used right.	69
Original steel-framed	buildi	oncrete Frame ng raised 27 ft by precast rmer steel sides and roof.	80
	select	ion and application of wire- ne and confusion on the job.	114
Job Talk	20	Transmission Line Tower Raising	88
It's Your Business	26	Jaeger Rolls Into Loader Field	93
Picture of the Month	43	Gallows Frame Sets Big Tanks	106
Construction News in Pictures	44	Dredge Handles Boulder Clay	.110
Construction 'Round the World	47	Caterpillar's No. 6 Shovel	132
Editorial	51	Shaft is Temporary Pedestal	136
New Twist in Wall Construction	59	Contractor-Labor Relations	142
Little Cableway Places Concrete	61	Electric Arc Cuts Non-Conductors	150
Ten Ways to Cut Cycle Time	62	How to Construct Terne Roofs	174
Batch Plant Supplies Two Pavers	64	Construction Equipment News	190
One Man Makes Pipe	86	Methods Memo; On the Cover	226

HAROLD W. RICHARDSON, Editor HENRY T. PEREZ, Senior Associate Editor IRA F. ANGSTADT, Managing Editor

Associate Editors:

New York: J. M. Connolly, Equipment • San Francisco: L. L. Wise • Washington: V. B. Smith

Assistant Editor: Nelle Fitzgerald, Layout Assistant: Audrey Thornton . Editorial Secretary: Gloria Hussey

Domestic News Bureaus: Atlanta • Cleveland • Detroit • Houston • San Francisco • Washington — Foreign News Bureaus: London • Frankfurt • Paris Tokyo • Mexico City • Manila • Rio de Janeiro Francisco ·

R. F. BOGER, Publisher

April 1953

CONSTRUCTION METHODS AND EQUIPMENT Vol. 35-No. 4

Member ABC and ABP

Published monthly by McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948)

Executive, Editorial and Advertising offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Jeseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senier Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

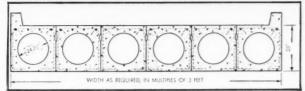
Subscriptions: Address correspondence to Construction Methods and Equipment— Subscription Service, 330 W. 42nd St., New York 36, N. Y. Allow ten days for change of address. Subscriptions are solicited only from persons anagoged in construction or in supplying the construction industry. Position and company connection must be indicated on subscription orders.

on subscription orders.

Single cepies, 35c. Subscription rates—United States and pessessions \$2.00 a year; \$3.00 for two years; \$4.60 for three years. Canada \$4.00 a year; \$6.00 for two years; \$5.00 for three years. Other Western Hemisphere \$10.00 a year; \$16.00 for two years; \$2.00 for three years. All ether countries \$15.00 a year; \$15.00 for two years; \$30.00 for three years. All ether countries \$15.00 a year; \$15.00 for two years; \$30.00 for three years. Rentered as second-class matter July 14, 1949, at the Peat Office at New York, M. Y., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1953 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

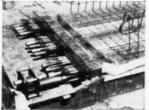


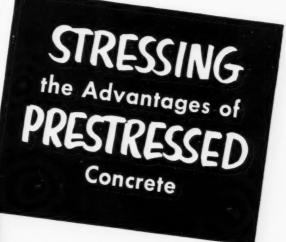




Typical cross-section of prestressed concrete bridge shows assembly of standard units 3 ft. wide. Top, views of Gleniron, Pa., Bridge. Below, anchorages for prestressing, spaced 120 ft. apart, have total capacity of 200 tons. Seven-strand steel cable, 0.25" diameter, is tensioned to 135,000 psi, in groups of ten. Using 'Incor', members are lifted 3-4 days sooner . . . maximum speed, minimum cost.







Prestressed, Precast Concrete Members Lifted 3-4 Days Sooner, using 'INCOR' 24-Hour Cement

• This 265' prestressed, precast concrete bridge, with 25'4" roadway, recently completed at Gleniron, Union County, by Pennsylvania Department of Highways—one of 73 bridges of this type, with clear spans up to 50'—consists of 45 prestressed members, each 53' long, 3' wide, 33" deep, weighing 20 tons, produced by CONCRETE PRODUCTS COMPANY OF AMERICA with Air-entraining 'INCOR' Cement.

With 7 men and crane operator, MURPHY CONSTRUCTION COMPANY, Hummelstown, Pa., erected this bridge in less than a week. Cost: about 25% less than estimated for built-in-place reinforced concrete of conventional design.

Tensioning is usually applied when concrete attains 3500-4000 lbs. compressive strength. Dependable 'Incor' high early strength makes it easily possible to lift prestressed members 3-4 days sooner than with ordinary concrete. For high strengths, low water-ratio is necessary, and 'Incor' mixed with 4½ gal. water per bag of cement develops over 4000 lbs. in 48 hours.

COM	PRESSIVI	STREN	GTH OF	'INCOR'	CONCE	ETE			
Max. Water Gal/bag	6 x 12-in. cylinders, cured moist at 70°F. Compressive Strength—p. s. i.								
	1 day	2 day	3 day	4 day	7 day	28 day			
41/2	3550	4550	5100	5450	6050	7000			
5	3150	4050	4600	4950	5550	6450			
51/2	2750	3650	4150	4500	5050	5950			

Dependable 'Incor'* high ultimate strength means that initial 'Incor' economies are matched by long-time durability and lowest annual cost—attested by over 25 years' performance of America's FIRST high early strength portland cement.

*Reg. U. S. Pat. Off,



LONE STAR CEMENT
CORPORATION

Offices: ABILENE, TEX. - ALBANY, N.Y. - BETHLEHEM, PA. - BIRMINGHAM
BOSTON - CHICAGO - DALLAS - HOUSTON - INDIANAPOLIS
KANSAS CITY, MO. - NEW ORLEANS - NEW YORK - NORFOLK
PHILADELPHIA - RICHMOND - ST. LOUIS - WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 126,000,000 SACKS ANNUAL CAPACITY

UAGKSUN ELECTRIC Available A BETTER, MEANS OF in: MACADAM BITUMINOUS MIXES,

Self-propelled Tandem Jackson Compactor (15-in. wide) compacting sub-base to specified density, in one pass, for blacktop pavement widening strip. Controlled by spreader operator, it easily keeps up with spreader. Rate: 38 ft. per minute.





The super-powerful improved Jackson Vibratory Compactor which, as a manually operated machine, has proved so extremely efficient in the compaction of granular soils, sub-bases for blacktop highway widening projects and highway blacktop patching and widening, is now available in multiple units — in widths to meet the requirements of any project of any size — tailored to fit.

PAVEMENT WIDENING

At left is illustrated a two-unit (4 ft. wide) Jackson Vibratory Compactor on macadam base course work. It is applied to a diminutive tractor, on which is mounted a Jackson Power Plant for operating compactors. With this new, faster and better means of macadam densification, 10" depths of rock can be keyed and compacted in just two passes. Voids completely filled with fines in just two additional passes, which is the operation shown.

Jackson single-unit, manually guided Vibratory Compactor consolidating, to specified density, selected granular material used for backfilling in pipe line trench. Result — Pipe line is uniformly supported by compacted soil and top of trench stays to finished grade.

VIBRATORY COMPACTING EQUIPMENT

IN 12-INCH TO 12-FOOT WIDTHS
TO MEET REQUIREMENTS



EQUALLY ADVANTAGEOUS IN STABILIZED ROAD CONSTRUCTION

In bituminous-sand-gravel and other mixed-in-place combinations Jackson Vibratory Multiple-Unit Compactors achieve greater density and save time and money not only by greater efficiency but also by eliminating previously necessary operations. Shown above, is a six-unit Jackson Vibratory Compactor application, (12-ft. wide and adjustable for crowns) working on stabilized road.

It will pay you to get the complete facts on this outstanding equipment, at once! See your Jackson Distributor or write to us, giving details of project contemplated.



Manually guided, self-propelled, this 24" Jackson vibrafory Compactor, with quick-pick-up auto trailer mounting a Jackson Power Plant, is unmatched for blacktop highway patching and widening, paving drives, railway crossings, platforms, and compacting granular soil in bridge approaches, concrete floor sub-bases and many other applications.

JACKSON VIBRATORS, Inc.

B.F. Goodrich tires roll 50,000 miles on rocks and gravel



Clayton Baum points out Rock tire tread aetails to Owner M. C. Hubbell.

HAULING ore from mine to mill is the job of the M. C. Hubbell Company, Sahuarita, Arizona. Its units carry 18 to 21-ton loads over winding, hilly roads that cause constant weight shifting—over roads strewn with abrasive gravel and razor-sharp rock that cut and chew tires.

Uneven wear and premature failure are common and costly occurrences when tires operate under such severe conditions. But not the tires used by Hubbell. They are B. F. Goodrich tires, chosen after tests of all types of tires. BFG Rock tires have run better than 50,000 miles and are giving 30% more service than any tires ever used. No wonder this company's equipment rolls on B. F. Goodrich tires exclusively.

Owner M. C. Hubbell likes the tough, cut-resistant tread and husky, full-traction cleats of the Rock tire. The Rock tire is built with the patented nylon shock shield. Layers of strong, elastic nylon cords are built between the tread and cord body. Under impact, these cords stretch together to shield the tire body from shocks and bruises. You profit four ways from this exclusive nylon shock shield:

(1) more recappable tires and more hours of service per recap (2) more original hours of service (3) greater bruise resistance (4) less danger of tread separation. Double nylon shock shield in sizes 12.00 and larger.

It costs you no more to get the extra advantages and additional hours of service B. F. Goodrich tires give. See the B. F. Goodrich retailer for what's new in off-the-toad tires. His address is listed under Tires in the Yellow Pages of your phone book.

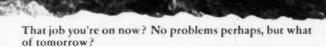
-	D. St.
	RESEARCH KEEPS
B.1	Goodrich
100	Inst Odrich
	IN RUBBER
	412
	Goodrich Co.,
	O-14, Akron, Ohio
Please se	nd name and address of my nearest retailer
Name	
Compan	у
Street	
City and	State

Always specify B. F. Goodrich when you order new equipment.



are not the only problems!

Northwest Crawlers get you there and back!



That's the thing about Northwests! They meet the daily, unexpected problems that every job presents.

Take Northwest Crawlers! They have proved themselves over miles of travel. Where there are grades to climb, streams to ford or rough going to negotiate, your Northwest gets you there — and back.

It's a real Rock Shovel — you're set for the toughest digging — sure of the highest output, in any digging. It is quickly converted and you have a recognized leader whether you operate it as a Shovel, Crane, Dragline or Pullshovel.

Whether at sea level or two miles up you are equipped with a properly engineered power plant plus the Northwest Dual Independent Crowd that utilizes force many other shovels waste entirely.

These things are worth money. They are advantages that are worth planning for. Now is the time to learn about Northwest features. Let us tell you the whole story.

NORTHWEST ENGINEERING COMPANY 1503 Field Building, 135 South LaSalle Street, Chicago 3, Illinois



MORTHWEST

SHOVELS . CRANES . DRAGLINES . PULLSHOVELS



HERE Hot Shot City Deliveries by White 3000
Real time savers through crowded city streets

Real time savers through crowded city streets . . . these White 3000's. Easy to drive! Unexcelled vision! Harrison Lumber has Model 3014 Whites with low-stake delivery bodies for city service.

HERE White Tractors for Large Job Hauls

"It's a heavy load, take a White!" That's the word at Harrison, where White tractors (Model WC20T) are ready and waiting for the big job hauls... big timber loads.

HERE White Trucks with Roll-Off Body
And where needed, the White Model

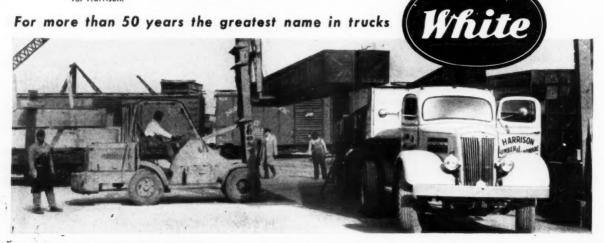
And where needed, the White Model WC 20 with roll-off body for bulky truck load deliveries are saving time . . . handling the tough jobs well for Harrison.

FROM six bags of insulation through crowded city streets to a full load of 24 x 24 timbers for a Mississippi River construction job, everything goes by White at Harrison Lumber & Hardware Co., St. Louis.

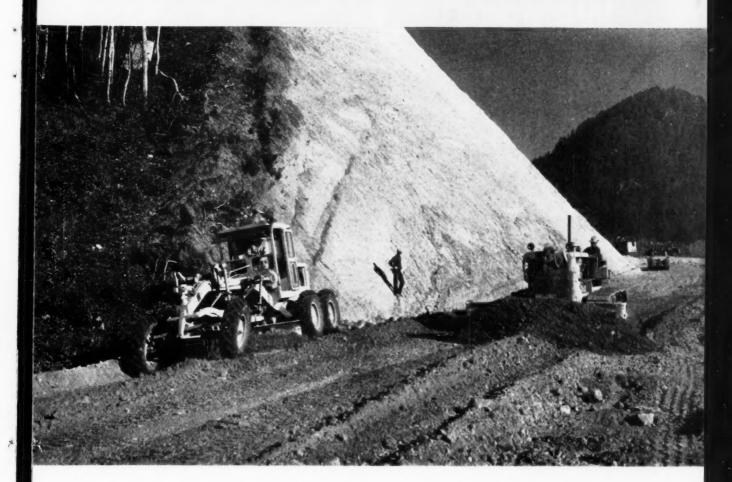
President John Harrison says: "We cut delivery costs substantially by buying Whites tailored to our exact needs."

You can do the same thing in your business. Call your White Representative for facts.

THE WHITE MOTOR COMPANY
Cleveland 1, Ohio



Don't send a LIGHTWEIGHT to do HEAVY grading



Heavy grading is no job for balky, fragile equipment. That's why you see a Caterpillar No. 12 Motor Grader on the job in the picture, and almost everywhere heavy grading is required.

The powerful, durable Cat* Motor Grader not only is equal to the toughest jobs, but it does them quickly and inexpensively. It has a performance record and life line which no comparable equipment can match.

The No. 12 above is being used by Kiely Construction Co., Butte, Mont., on a 4-mile relocation job of U. S. 26 near the Palisades Dam, Irwin, Idaho. Besides grading in the rocky cut, the No. 12 also is compacting fill along an 84" culvert. Teamed with the grader on the job are nine D8s with scrapers, and two Diesel D13000 Engines.

Rugged construction backed up by quality materials gives the No. 12 the muscle to endure rough going. It has a circle built of box section that weighs 35 pounds per foot—the strongest circle used on any grader!

In addition, frame, engine and controls are made by one manufacturer. Frame strengths and power train match engine power. The entire unit is designed to *keep the blade where the operator wants it . . .* to stay on the job and out of the repair shop.

Because engine, frame and controls are Caterpillar, you get quick, reliable service from *one* dealer. He will be happy to demonstrate the entire line so you can see for yourself why 99 per cent of all Cat Motor Graders ever built still are in use, still building profits.

Caterpillar Tractor Co., Peoria, Ill.

CATERPILLAR*

NAME THE DATE... YOUR DEALER WILL DEMONSTRATE





HARD-HITTING BLUE BRUTE breaker at work on the hospital job.

WORTHINGTON BLUE BRUTE 105-ft. compressor used by the J. E. Dunn Construction Company in construction of a new addition to the University of Kansas Hospital.

Mr. Dunn goes on to say: "We find that we can depend on our Worthington 105-foot and 60-foot compressors, which we have been using now for approximately 6 years. Maintenance costs of these units have been extremely low.

"We have used the Worthington Blue Brute to power hand-held air tools and kindred equipment on all types of construction jobs. Many of our jobs have been extremely tough, but our superintendents have learned to expect uninterrupted service from these machines and to date they have been getting just that. We believe in using the best machinery we can buy, because we know from our past experience that we get more for our money by buying the best."

Find out how Blue Brutes can step up efficiency on your construction jobs. Contact your nearest Worthington district office or distributor for more facts and bulletins. Or write to Worthington Corporation, Construction Equipment Division, Plainfield, N. J.





If It's A Construction Job, It's A BINE BRUTE Job



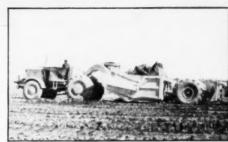
NOW... Scrapers... BETTER THAN EVER!

CHECK THESE OUTSTANDING FEATURES: Lever actuated independent control of bowl lift, apron and ejector Only 12 feet of cable

10 speed transmission Loaded top speed 28 m.p.h.

Completely interchangeable jacks

Reversible and interchangeable cutting blades Simple, compact hydraulic assembly.



THIS improved lever-type 15.5 yd. Euclid Scraper sets a completely new standard for scraper design, performance and serviceability. It has many profit making features that are not available in any other scraper on the market.

For example, the 10 speed transmission means faster average speeds and more pay trips per hour. Lever action using interchangeable hydraulic jacks eliminates all but 12 feet of cable. A new simplified control system consists of internally mounted pump, valve and tank in one compact assembly—there are no suction hoses and complicated connections. The planetary drive axle—the same model used in thousands of Rear-Dump Euclids—is easy to service and has proved its efficient long life performance on hundreds of tough jobs.

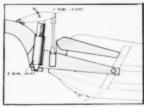
Yes, "Euc" Scrapers are better than ever—in performance, production, maintenance cost and job availability. See your Euclid distributor for all the facts that add up to less down time, lower costs and more profit.

The EUCLID ROAD MACHINERY Co.

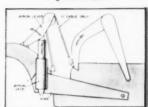
CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID

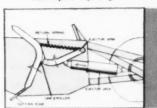
CODE: BENTLEY



High Bowl Lift



Fast Apron Opening



Positive Power Ejector



"JOB COMPLETED ... and Texaco



END OF JOB WELL DONE: Partial view of Western Pipe Line Constructors' equipment after ahead-of-schedule completion of 100-mile stretch of pipe laying. Bulldozers,

shovels, ditchers, side booms, speeders, air compressors, drills, trucks—all were lubricated with Texaco, all performed to perfection.

TUNE IN:

Tuesday nights on television the TEXACO STAR THEATER starring MILTON BERLE.

See newspaper for time and station.



AHEAD OF SCHEDULE helped us to do it

-says Howard Elliott, Master Mechanic, Western Pipe Line Constructors, Inc., Austin, Texas

The job was laying approximately 100 miles of 30-inch gas line through rough and hilly country in Kentucky. "To keep on schedule," says Howard Elliott, Master Mechanic, "we just couldn't afford to have any equipment laid up because of lubrication failures — and we didn't have any, thanks to Texaco Products and Lubrication Engineering Service. Every piece of equipment worked perfectly and we finished ahead of schedule with a mighty small bill for maintenance."

Texaco Simplified Lubrication Plan

Everywhere, contractors are getting outstanding results using Texaco Lubricants, Texaco Lubrication Engineering Service and the Texaco Simplified Lubrication Plan. This last enables them to handle all their major lubrication with *only six* Texaco Lubricants — eliminates the confusion that leads to costly lubrication mistakes, saves time and money.

Call in a Texaco Lubrication Engineer.

He will survey your equipment, study your operating problems, and help you set up a Texaco Simplified Lubrication Plan "made to measure" for your requirements.

Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.

Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

BARBER-GREENE HEAVY DUTY DITCHER

MODEL for lowest cost per foot of trench in all weather

DITCHER



SAVE ON JOBS LIKE THESE:

Highway Widening Sewer, Water and Gas Distribution **Pipe Line Construction Airport Drainage Uncovering Joints Placing Conduit Tile Building Foundations** Farm Tiling **Grave Digging**

DIGS CLEAN ... leaves vertical walls . . . square cuts . . . eliminates most expensive handwork.

MILLING ACTION... closely spaced buckets pare small increments as a milling machine cuts metal.

OVERLOAD RELEASE...

slips when overload occurs . . . automatically re-sets itself ... no down time for replacing shear bolts, etc.

Only Barber-Greene offers so many proved ditcher advantages to save time and money on all trenching operations. For instance, the Vertical Boom means a compact, easily maneuvered machine: digs straight down, right up to walks, foundations, underground pipes, etc. ... digs all the ditch ... no expensive handwork reguired. The Vertical Boom stays down - the harder the digging, the harder the buckets hold it down. Cuts trench to 8'-3" depth, 24" wide.

Self-cleaning "kick-out" buckets operate in a vertical plane . . . produce the famous B-G milling action that cuts through coral, frozen ground, caliche and other formations that completely stop other ditchers.

Another time- and money-saving feature is the exclusive B-G overload release that slips on overload and automatically resets itself until the obstruction is removed or the operator stops machine—and then it re-sets itself for continued operation, protecting machine, hidden mains,

Plan to put the advantages of the B-G Model 44-C to work for you.

Barber-Greene



don't RUIN YOUR FLYWHEELS AND PRESSURE PLATES



Whether you're having trouble with the master facings on your tractors or the clutches in your trucks, you'll find Velvetouch Matched Facing Sets keep equipment out of the repair shop and on the job. Because Velvetouch gives you FOUR controlled friction surfaces instead of two...gives you positive protection against heat-checked flywheels and pressure plates!

In addition, Velvetouch Matched Facing Sets insure increased clutch capacity, for they DOUBLE the controlled friction area you get with conventional plates. And with Velvetouch, you can reclaim old flywheels and pressure plates that have already been heat-damaged, and put them back into service . . . better than ever!

Detailed literature available now. For further facts about Velvetouch Matched Facing Sets...see your supplier, call our nearest branch, or write us direct.

THE S. K. WELLMAN CO. • 200 EGBERT RD. • BEDFORD, OHIO

THE S. K. WELLMAN CO. SALES OFFICES AND WAREHOUSES

- CLEVELAND 200 Egbert Rd.,
 Bedford, Ohio
- DALLAS 3407 Main Street,
 Dallas 1, Texas
- ** DETROIT 16622 James Couzens Highway, Detroit 21, Mich.
- * LOS ANGELES 1110 South Hope St., Los Angeles 15, Cal.
- PHILADELPHIA 1545 West Belfield Ave., Philadelphia
- * PORTLAND 636 N. W. 16th Ave., Portland 9, Oregon
- * SAN FRANCISCO 424 Bryant
- * TORONTO, ONTARIO The S. K. Wellman Co. of Canada, Ltd., 2839 Dufferin St.
- ** WASHINGTON 1101 Vermont
- ** EXPORT DEPARTMENT 8 South Michigan Ave., Chicago 3, Illinois
 - * SALES OFFICE AND WAREHOUSE ** SALES OFFICE



Southern Superintendent Says

"We load quicker, haul faster and Move More Dirt!"



INTERNATIONAL

POWER THAT PAYS





Atlanta airport expansion job is scene of new triumph for International power

When C. A. A. district headquarters decided to move to Atlanta, Georgia, the east-west runway at nearby Fulton County Airport had to be extended to 5,000-foot length.

One contractor, C. L. Rhodes of Decatur, Georgia, is doing the entire job, including cutting through a 39-foot hill and moving 350,000 cubic yards of sandy clay.

Rhodes' General Superintendent, R. N. Smith, tells how the work is going:

"We load quicker, haul faster and move more dirt with our Internationals than with any other crawlers.

"Our operators push 'em to the limit all day long to get the job done ahead of schedule. The tractors get clean filters, fuel and grease, and hard work—more hard work than is reasonable—and they take it month after month without a let down!"

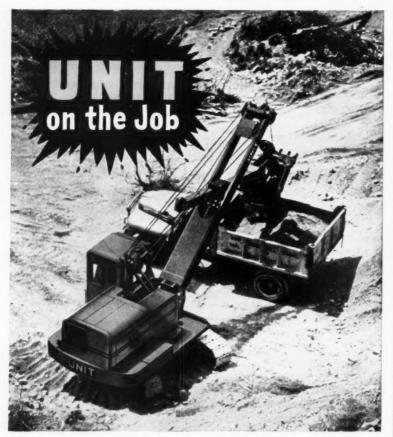
That's what International owners everywhere are finding out. Find out for yourself. Ask your International Industrial Distributor for details.

INTERNATIONAL HARVESTER COMPANY CHICAGO 1, ILLINOIS



JOHNNY-ON-THE-SPOT SERVICE. A fast field service team from International's Atlanta distributor rolls up to the job site. Service like this from *your* International distributor is as near as your nearest telephone, to cut down downtime and keep your equipment rolling!





SWING SPEED makes PAY LOADS!

Here's a UNIT ½ Yard Shovel doing a PRODUCTION DIGGING JOB in a gravel pit. UNIT owners like the ease of operation and the FULL VISION CAB for complete visibility. They also like the sturdy construction and the many mechanical features, plus the ECONOMICAL PERFORMANCE and LOW UP-KEEP which all add up to EARNING POWER. Why not investigate what UNIT can do for you — on YOUR next excavating and material handling job?

SEE FOR YOURSELF: Let us send you our novel TV Brochure. It illustrates the complete UNIT line.

UNIT CRANE & SHOVEL CORPORATION
6305 WEST BURNHAM STREET . MILWAUKEE 14, WISCONSIN, U. S. A.



1/2 or 3/4 YARD EXCAVATORS...CRANES UP TO 20 TONS CAPACITY CRAWLER OR MOBILE MODELS . . . GASOLINE OR DIESEL



All Models Convertible to ALL Attachments!

* JOB TALK *

... About Methods



Dozer Tooth Digs Trench

The contractor on a large housing project near Concord, Calif., makes short work of excavating trenches for house footings prior to laying the slab foundations. The dozer blade on his crawler tractor is fitted with a center steel plate as wide as the trench to be gouged out and extending approximately 15 in. below the bulldozer blade.

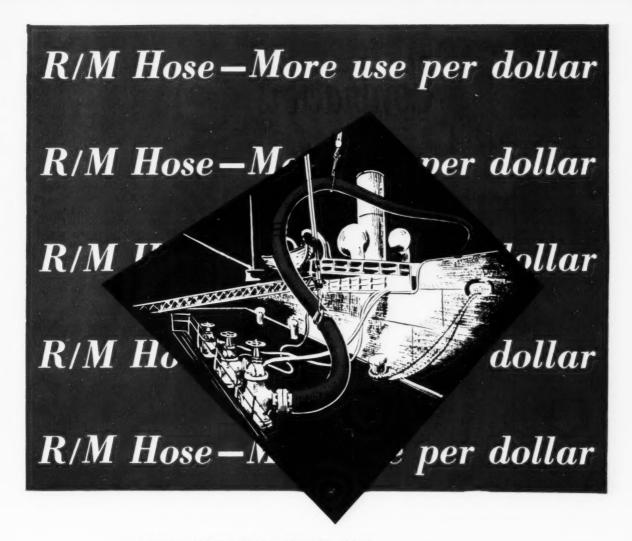
Foundation lines are marked off with lime, the tractor operator lowers the blade and the big tooth shovels a ditch as it is pushed along. Under certain conditions, a helper is stationed out front to guide the operator with hand signals.



Floor Joints "Controlled"

Barrett & Hilp, San Francisco contractors, devised a method to prevent undue cracking of 625,000 sq ft of concrete floor they were pouring for a warehouse in Seattle. The 6-in. floor slab was laid in sections measuring 22x20 ft. To maintain an unobstructed work area, Project Superintendent Lloyd Brown delayed excavation of foot-

(Continued on page 22)



SPECIAL HOSE FOR SPECIFIC USES . . . and you save money in the long run.

R/M makes hose for hundreds of uses . . . many of them requiring special hose design and manufacturing experience. For example, Oil Loading Hose for rapid pumping of petroleum between ship and shore . . . flexible, strong, safe and leakproof. Other R/M hose for suction, steam, chemicals . . . and giant hose for dredging . . . hose that's flexible and light, yet rugged and strong for air, water, paint spray . . . all designed to do their specific job and give you MORE USE PER DOLLAR. Ask the R/M distributor about any special or standard hose application . . . Also how you can save money, too, on R/M transmission, and conveyor belts, and V-belts.

MANHATTAN RUBBER DIVISION - PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.















100

V-Belts

Conveyor Belts

Hose

Roll Covering

Tank Lining

Abrasive Wheels

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Brake Linings • Brake Blacks • Clutch Facings

Asbestos Textiles • Teflan Products • Packings • Sintered Metal Parts • Bawling Balls

Rooshor Head

Wood or steel head with holes for nailing into stringers. Roos Extension Shores take any length 4 x 4 extension.

Wood Upper Member

Permits ease in horizontal or diagonal bracing. No problem of placing an extra bracket or hitting a "set" hole in a steel member.

Steel Pipe, Concrete-Filled

11/4" steel pipe filled with concrete ... will not crush or buckle.

Rooshor Lock Will Not Slip!

This exclusive lock acts like a pair of giant tongs—the greater the load, the greater the grip.

Contractors prefer Rooshors because

Rooshors save time, material and labor . . . so naturally they cut costs on all your shoring operations. They are easily set — instantly and accurately adjusted to any fraction of an inch by only one man. There are no loose pins and no screw adjustments to become clogged. They have longer adjustment in their range of three sizes: 8 ft. to 14 ft.; 7 ft. to 13 ft.; and 5 ft. to 9 ft.—higher stories are shored with Roos Extension Shores. Rooshors have been used by contractors from coast to coast and in many foreign countries for over 35 years.

Rooshors and Roos Column Clamps are available for rental with purchase option from Warehouse stocks in principal cities. New equipment is for sale FOB factory.

ROOS COLUMN CLAMPS

Roos Column Clamps, consisting of two identical hinged units, eliminate lost time and motion in fitting and adjusting... there is no wrong way to put them on. They have no loose parts to cause needless delays and a hammer is the only tool needed.





BAKER-ROOS, INC.

602 WEST MCCARTY STREET

WRITE TODAY FOR BULLETIN - 253

JOB TALK . . . Continued from page 20

ings for columns until the concrete in the floor had set.

Footing locations were blocked off as diamond-shaped areas 4½ ft square at each intersection of the floor sections. In one direction, corners of the diamond coincide with the joints between sections. That left only two corners from which cracks could start.

From each of these corners, a 1x2 was placed on the levelled fill across the 20-ft space to the next diamond. On this 1x2 was placed on edge a piece of Masonite $1\frac{1}{2}$ in. wide. When the concrete set, it cracked only along this "controlled joint", leaving the remainder of the floor without a flaw.



Two-Way Clevis

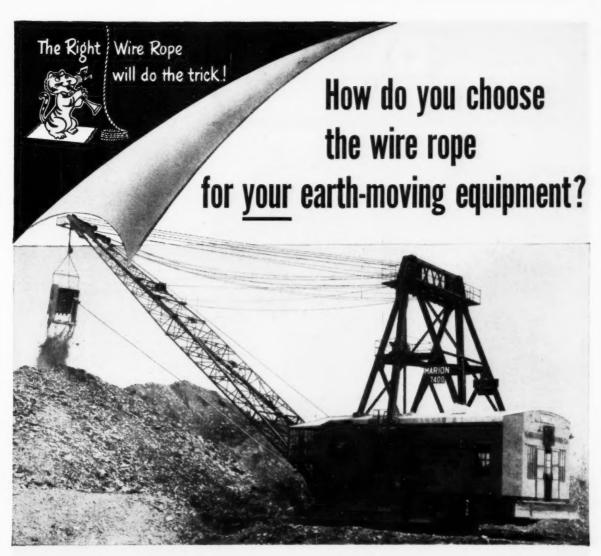
Here is a clevis that permits transfer of a load from one crane hook to another without lowering the load. This one is used to handle pump casings and other heavy equipment aboard the dredge, William A. Thompson, which works regularly on the upper reaches of the Mississippi for the St. Paul District, Corps of Engineers.

Board Support and Eaves Hook

Safe and efficient steel board supports and eaves hooks for work on roofs are used and recommended by the Milwaukee District of the Corps of Engineers. They are simple and can be made by any construction

The sketch shows details. Make two or more and connect two board supports by bolting one near each end of a 2x6 board of suitable length. The eaves hooks are hooked around the overhang of the building on the

(Continued on page 24)



Reserve wire rope on your stripping or excavating machinery needs a particular combination of strength, fatigue resistance, and flexibility. Hoist ropes on big power shovels need high tensile strength to absorb impact stresses and must be extremely tough to withstand constant bending over sheaves. On draglines, drag ropes must possess high strength combined with great abrasion resistance. Boom ropes must have strength plus fatigue resistance.

There's an American Tiger Brand Wire Rope that has been especially designed for every grueling rope job that you will encounter. And it pays to spend a little extra time to analyze your rope requirements carefully and determine exactly which Tiger Brand Rope is the best one to use.

Our experienced Wire Rope Engineers will be glad to help you do this. They know what every Tiger Brand Rope can do and what type of rope every job requires. Their assistance assures you of getting the right rope for every job; and that saves you money. Remember, the right rope often lasts up to twice as long as the wrong one. Free engineering service is available through our nearest District Sales Office or by writing to American Steel & Wire, Rockefeller Building, Cleveland 13, Ohio.

AMERICAN STEEL & WIRE DIVISION UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed



UNITED STATES STEEL

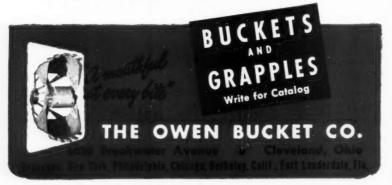
Choose the ROUND NOSE for Rigorous Requirements

If you've had occasion to use a round-nose hand shovel you'll understand why—

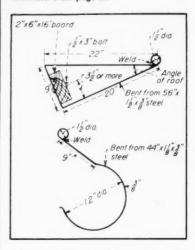
An Owen Round-Nose Bucket is uncommonly efficient in handling rock and broken slag and in exceptionally hard excavating and dredging operations.

As compared to a straight-nose shovel, the roundnose penetrates hard earth more readily—"noses" its way into broken rock with less effort—and consistently comes up with a "bigger load." And like an egg it is stronger due to its curved surface.

In the Owen line is a bucket for every specialized and general digging and rehandling purpose.



JOB TALK . . . Continued from page 22



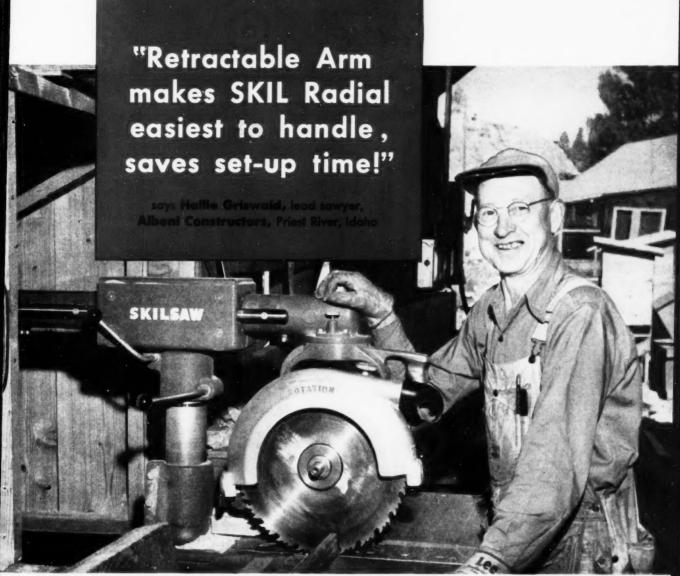
side opposite the slope where the roof board is placed. Two ¾-in. ropes pass over the roof ridge to connect hooks and board supports. To prevent chafing, file the corners of the metal eyes where ropes are attached.



Keeps Heat Off Dynamite

Portable steel warehouses are useful around construction jobs, and the Dravo Corporation has been supplying them in small sizes—7 ft 9 in. by 6 ft 5 in. by 6 ft 5 in., capacity: 275 cu ft—as exceptionally handy structures to store explosives on the job. They can be moved readily and need only a firm concrete or timber base as foundation.

The magazine shown here is used by the Illinois Powder Manufacturing Co. for field storage and is shaded from direct rays of the hot midwestern sun by a false roof. Placing the container under trees for shade is done on some locations, but the special roof provides positive shade anywhere. Wood studding on the interior is a safety precaution, and containers are grounded to reduce the hazard of lightning and static sparks,

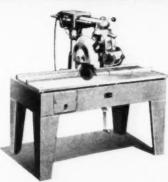


A spokesman for this firm—specialists in dam construction who built the \$4,000,000 Albeni Falls Dam—has this to say about their SKIL Radial Saws, "During the first eight months work on this flood control project, one of our two SKIL Radials handled more than 5,000,000 board feet of lumber. The SKIL Radial is designed for production sawing. Because of the retractable arm, you can walk right up to the center of the work table with the lumber. You work faster, too," Hallie Griswald, lead sawyer, concludes, "because all controls can be reached from the front of the table."



SKIL Products are made only by SKIL Corporation formerly SKILSAW, Inc.

5033 Elston Avenue, Chicago 30, Illinois
Factory Branch Offices in 34 Principal Cities
In Canada: Skiltools, Ltd., 3601 Dundas Street West, Toronto 9, Ontario



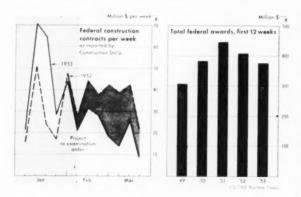
SKIL Radial Saws

A complete construction workshop. Easily operated with speed and precision by one man. Plenty of set-up room provided by retractable arm.

SKII. Radial Saws are available in 2, 3, 5, and 7½ h p., with 14" and 16" blades, 1 or 3 phase, all voltages, manual or magnetic control. Accessories available for routing, shaping, metal cutting.

See your distributor for complete information or call your nearest SKIL Factory Branch

It's Your Business · · ·



The Federal Slump is Temporary

The effects on contractors of the Federal Economy Directive (that was described to you here last month) are shown in part in the accompanying graph.

Contracts for federal construction are down 8% for the 12 weeks to date this year. But in January they were 48% higher than last year. In February, they tobogganed 35% below a year ago and in the first three weeks of March they sank 52% below the same weeks of 1952.

While the federal work is on ice, however, state and municipal awards are running 37% higher than last year and private construction is up 48% for the same 12 weeks. The over-all average of new contracts this year so far is 37% higher than a year ago.

The federal slump is temporary. Examination of 236 of the most recent federal jobs shows their status to be in these categories: contracts awarded on 3, low bids received on 64, 1 suspended, 3 indefinitely postponed, 4 bids rejected, 29 bid dates cancelled, 31 bid dates extended, bids called on 101 projects with late March or April dates.

Maintenance Contracts

Contractors will be called on by 25 states to bid on some \$51 million in maintenance this year.

The big six are: Michigan, \$12.7 million, up 6%; Ohio, \$7.5 million, up 7%; Virginia, \$4 million, up 14%; Illinois, \$3.2 million, up 21%; Kansas, \$2.5 million, up 1%; Nebraska, \$2 million, up 67%.

Equipment Supply Good, Only Moderate Price Increases In Sight

Earthmoving equipment shipments broke all records last year. They topped \$825 million in value, almost 85% above the previous record set last year.

These were the big increases that did it: equipment for mounting on tractors, up 18%; wheel tractors, up 18%; power shovels and cranes, up 10.6%. These increases were below the average: tracklaying tractors, up 6.5% and road construction and maintenance machinery, up 5.1%. Truck and wagon shipments were down 11%.

A fourth of these machines (excluding power shovels and cranes) left the country. Even more track-laying tractors left the U. S., 29% of total shipments. Exports of all earth-moving machines (except shovels and cranes) increased 9% in 1952 to \$157 million.

This over-all record for shipments, however, was made in the first half with 57% of the year's total. In the second half shipments dropped to \$358 million, 4% behind the same months of 1951 and 23% behind the first half of 1952.

Fourth quarter shipments, at \$197 million, were 8% under those of the year before, but they gained 23% over the third quarter movement of these big machines.

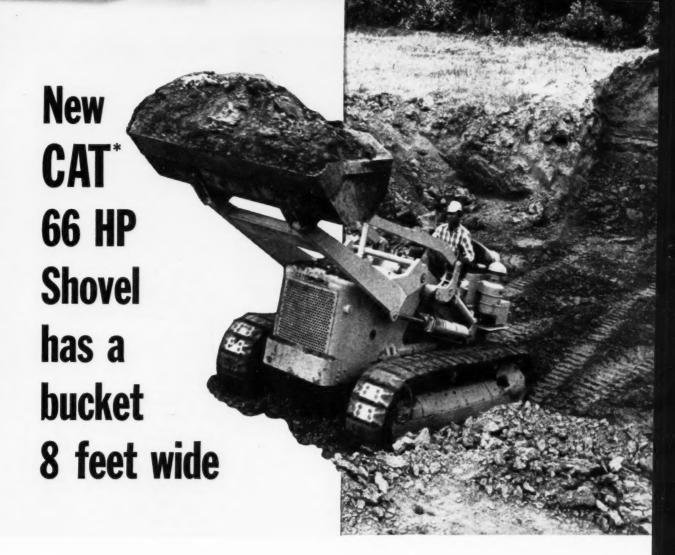
Price controls were lifted in mid-February on construction machines themselves. On March 12 controls went off parts, engines, air compressors, accessories. Only scattered, moderate and necessary price increases are in prospect, however, and these principally in the heavier units where higher steel, labor and transportation costs have put a bad squeeze on manufacturers. The wholesale price index for construction machines is 126.3 for February, up 26.3% since 1947-49. This is 1.4% higher than in January 1952 and 2.6% above prices in January 1951.

Production and shipments are expected to average out close to the 1952 totals. Purchases by state highway departments are budgeted 10% lower than last year. But contracts to be let by state highway departments and turnpike authorities are budgeted 35% higher. Private contracts are running 48% above last year and state and municipal contracts are 37% higher for the first 12 weeks. This will put a bulge in spring earth moving.

Excavating and Earthmoving Equipment Shipments

(As reported by US Bureau of Census-by years)

	Power shovels cranes	Road constr. & maint.	Equip. for mounting on tractors	Track- laying tractors	Wheel tractors	Trucks wagons, etc.	Port. blast- hole drills	Other exc & earth- moving	Total
1948	\$158,586,000	\$117,908,000	\$44,645,000	\$167,341,000	\$13,962,000	na	\$10,914,000		\$513,356,000
1949	89,204,000	96,883,000	38,177,000	196,622,000	12,499,000	na	6,774,000	(a)	440,159,000
1950	109,006,000	117,540,000	58,769,000	223,042,000	24,769,000	\$22,856,000	4,472,000	\$1,692,000	0 562,146,000
1951	180,680,000	151,779,000	64,816,000	263,579,000	55,238,000	36,840,000	5,818,000	6,208,000	764,958,000
1952	199,821,000	159,561,000	77,155,000	280,611,000	65,338,000	32,781,000	6,768,000	3,347,000	825,382,000



This is the new Caterpillar No. 6 Shovel. A glutton for work on construction jobs, it excavates, stockpiles, strips, loads, 'dozes, backfills and handles cleaning, grading and landscaping chores. Here, take a close look:

The shovel frame and tractor are welded and bolted together. This is *one* unit – big, tough and completely Caterpillar built.

That bucket is 96 in. across, scoops up 2 cu. yd. easily, and has 66 HP behind its hard-faced cutting edge of high-carbon steel. There's a 35° automatic tip-back which holds the load in the bucket, and a 50° dump angle, with impact shaking, to get rid of even the stickiest material quickly and cleanly.

The bucket is wider than the widest part of the tractor. You can work close to walls, and cut sidewalls clean, with this shovel.

Those crawler tracks are extra long and designed

especially for this unit. They're non-oscillating, too, for added stability and finer grading.

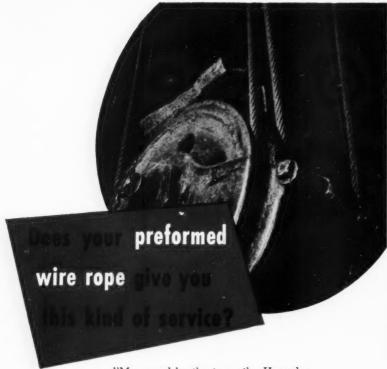
The Caterpillar-built by draulic system lets the operator raise and dump at the same time and features an automatic kick-out. And the operator sits high and clear, with excellent visibility of the bucket's sides, back and corners. Yet the unit's over-all height (6 ft. 11 in.) is low enough for working in tight places and low overhead areas.

Your Caterpillar Dealer is anxious to demonstrate the No. 6 Shovel for you. Give him a call.

Caterpillar Tractor Co., Peoria, Illinois

CATERPILLAR*

NAME THE DATE...
YOUR DEALER
WILL DEMONSTRATE



"Measured by the ton mile, Hercules Red-Strand preformed outlasts others about two to one," reports one operations manager. Another operator testifies, "Our records show Red-Strand is considerably out in front of four other ropes."

Why HERCULES Red-Strand excels

What's the reason for such performance and praise? In simple terms, it's because higher-than-rated quality in Red-Strand preformed delivers longer-than-expected service.

If you're not completely satisfied with *your* wire rope service, try Red-Strand preformed. You'll experience the difference too.



DISTRIBUTORS IN ALL PRINCIPAL CITIES

IT'S YOUR BUSINESS . . .

Continued from page 26

SOME BIG CONTRACT AWARDS OF THE MONTH

Stone & Webster Engineering Corp., 1403 Roseneath Rd., Richmond, Va., installation and general construction of 2nd unit for Portsmouth powerplant addition near Portsmouth, Va., for Virginia Electric & Power Co., Norfolk, Va., \$16-\$17,000,000.

Western Contracting Corp., 400 Benson Bldg., Sioux City, Iowa, the Massman Construction Co., 20 W. 9th St., Kansas City, Mo., and J. A. Jones Construction Co., 209 W. 4th St., Charlotte, N. C., powerhouse substructure, spillway and balance of earthwork for Stage II, Gavins Point project near Yankton, S. D., for U. S. Engineers, Omaha, \$17,525,046.

Merritt-Chapman & Scott Corp., 260 Madison Ave., New York, substructure 5-mi bridge over Straits of Mackinac for Mackinac Bridge Authority, Lansing, \$24,525,600. Superstructure to American Bridge Div., U. S. Steel Corp, New York City, \$41,544,563.

Peter Kiewit Sons' Co., 442 Post St., San Francisco, Calif., and Ben C. Gerwick, Inc., 112 Market St., San Francisco, Calif., substructure for 4-mi San Rafael-Richmond Bridge over north arm of San Francisco Bay, \$14,234,550. Superstructure contract to Peter Kiewit Sons' Co., and A. Soda & Co. and Pacific-Murphy Corp., both of Emeryville, Calif., \$21,099,319.

Panama-Williams Co., c/o owner 194 mi 16-in. welded joint oil products pipeline from Port Arthur, Tex., to Baton Rouge, La., for Texas Pipe Line Co., Gulf Refining Co., Sinclair Pipe Line Co., Texas Bldg., Houston, Tex., \$14,250,000.

Frank Scuderi, 5817 Carlyl St., Cheverly, Md., apartments, semi-detached and single houses near upper Marlboro, Md., \$18,000,000.

John Bowen Co., Inc., 171 Boston St., Dorchester, Mass., housing project for Boston Housing Authority, 230 Congress St., Boston, \$15,198,375.

Salt Lake Pipe Line Co., Box 117, Salt Lake City, Utah, 140 mi 8-in. petroleum products pipeline from Pasco to Spokane, Franklin, Adams and Spokane counties, Washington, for Standard Oil Co. of Calif., \$4,000,000.

Chicago Construction Co., 166 W. Jackson Blvd., Chicago, Ill., 300 homes at Northbrook, Ill., \$5,500,000.



Save up to 50% in labor and material. Saw repair patches gas, sewer and air line trenches in floors, streets, walks and highways. Save too, by sawing contraction joints in floors and highways . . . eliminate costly hand forming and spalling.

"4 OUT OF 5" BUY CLIPPER CONCRETE SAWS. Three-Point Suspension (see below) . . . the Patented Water Application which increases blade life and speed $_{
m p}$. . perfect balance and dashboard controls for operating ease and maneuverability — these are the reasons WHY - "4 OUT OF 5" Buy Clipper!

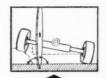
NEARLY 20 YEARS EXPERIENCE Sawing Concrete of All Types

The unqualified Clipper guarantee of satisfaction is backed by world-wide experience, the ability to select the finest materials and the "know-how" to put them together.



YOU CAN DEPEND ON CLIPPER SUPERIOR DIAMOND BLADES

guaranteed to . . . "Provide the fastest . . at the lowest cost." Clipper alone can supply every necessary metal bond . . . in over 36 specifications.



THREE POINT "No-Bind" SUSPENSION

Point Suspension holds ade straight and true in the blade straight and true in the cut — eliminates binding — drifting — sidewear and friction. Guarantees the longest possible blade life!



ORDER TODAY . . . on FREE TRIAL. Discover for yourself how Clipper will increase your profits by increasing your production at reduced costs. Clipper "ON THE JOB" FREE TRIAL guarantees satisfaction at no obligation.

COAST







Only minimum replacement material needed and is poured to straight,



Sawed lines confine breakout frac



nates spalls palling, 50% less seal and nance-free.



THERE'S A CLIPPER FACTORY BRANCH NEAR YOU

CLIPPER MASONRY SAW

... the ONLY saw in the world that will cut masonry materials of every size and description. Clipper size consistent with the size of the consistent of the control of the the ONLY saw in Sold on FREE TRIAL 15 MUDELS
Priced from \$265. PRICED FROM \$265





- . PHILADELPHIA
 - ST. LOUIS CLEVELAND
 - DETROIT
 - . AUSTIN, TEX.
 - · CHICAGO · LOS ANGELES

IN CANADA

- · NEW YORK • PITTSBURGH
- . BOSTON . SAN FRANCISCO HOUSTON
- TO CINCINNATI

KANSAS CITY 8, MISSOURI

- . ST. PAUL
- . WASHINGTON, D.C. · INDIANAPOLIS . BIRMINGHAM

COAST

- · CHARLOTTE, N.C. . DALLAS
- . DENVER P.O. BOX 476, WINDSOR, ONTARIO

COUPON

ľ	CLIF	PE	R MAN	ACTUR			
	2809	S.E.	Warwick	Kansas	City 8,	M	¢

Send FREE Literature and Prices on:

CLIPPER CONSAWS CONSAW DEMONSTRATION

CLIPPER CLIPPER DIAMOND BLADES MASONRY SAWS

No. 13-C COMPANY

SOLD ONLY DIRECT FROM FACTORY BRANCHES



Because all-welded construction keeps center of gravity low, Johnson Clamshell Buckets dig in straight, deep . . . get capacity load every bite. Big needle-bearing-mounted sheaves reduce friction loss, deliver full digging power to cutting edge. Hard manganese edge, welded to heavy lips, toughens with use. 3 types, 10 sizes from 3/8 to 21/2yds. Also check Johnson line of concrete mix plants, bins, batchers, hoppers, silos. C. S. JOHNSON (Kaehring Subsidiary) Champaign, III.



18½-ft.-per-min, Parsons 215 Trenchliner

With 30 digging feeds, this cross-country 215 Trenchliner digs 6 in. to 18½ ft. per min., 13 to 31 in. wide, up to 6 ft. deep. Square or round-bottom buckets have "easy-in, easy-out" Tap-In teeth. Standard tractor-type crawlers have 18-in. treads, lug-type shoes. Other Parsons Trenchliners: wheel-type 202 for drainage and utility work; 3 laddertypes, full crawler mounted; and the mobile, utility size rubber-tired Trenchmobile®.

PARSONS (Koehring Subsidiary) Newton, Iowa



25-ton truck crane service with Koehring 30

Maximum 110-ft. reach, with jib, and 25-ton lift capacity on rubber gives the Koehring 304 Truck Crane plenty of operating stability to handle big loads on wide work range. It quickly converts to heavy-duty clamshell, dragline . . . 34-yd. shovel or hoe. 35 m.p.h. travel cuts non-productive time between jobs. 304 also is available on cruiser or crawler mounting. Other Koehring sizes up to 79½-ton lift, and 2½-yd. dipper capacities.

KOEHRING COMPANY Milwaukee 16, Wis.

Amsco Chains Get Tougher With Use

How AMSCO Manganese Steel
Chains Acquire Progressively
Greater Resistance to Impact and
Abrasion.

Actual case histories prove that AMSCO Manganese Chains outlast ordinary chains by more than 6 to 1 where impact and abrasion exist. For example, on one conveyor operation, ordinary chain had to be completely replaced every three months. When AMSCO Manganese Steel Chain was installed, only a small fraction of the links were replaced during a test period of over 24 months.

Users of AMSCO Chains benefit by unusual freedom from expensive chain replacement, breakage, maintenance-down-time and other problems caused by impact and abrasion conditions.

AMSCO Manganese Steel Chains have the unique ability to work-harden with use. In rough service, they develop a surface hardness up to 500 Brinell. They also acquire a hard glass-like polish that helps shrug off grinding abrasion. All AMSCO Manganese Steel products — tough when produced — possess the extra-value quality of actually increasing dur-

AMSCO Chains are made of Manganese Steel—the "Toughest Steel Known." They are produced in many standard and special shapes by American Manganese Steel Division—largest producer of manganese steel for all industry.

ability with in-use battering and grinding.

If you use chain, and desire a more durable alloy, you are invited to contact AMSCO. There's a good chance we can save you money and provide chains that will outlast your service life expectations.





AMERICAN MANGANESE STEEL DIVISION

385 EAST 14th STREET . CHICAGO HEIGHTS, ILL.

Feundries at Chicago Heights, III.; New Castle, Del.; Denver, Colo.; St. Louis, Mo.; Los Angeles, Calif.
Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Quebec.



in WIRE ROPE, too, extra strength demands the RIGHT KIND of muscle

Towering as high as eight feet on his hind legs, the Kodiak or Alaskan Brown Bear ranks as the most powerful animal of North America. Rugged muscle development makes him the feared and deadly fighter that he is.

In wire rope, too, the right kind of muscle is essential to ward off the destructive effects of abrasion, corrosion, bending fatigue, load strain and shock stress. That's why in Wickwire Rope we make sure—through complete quality control—that you always get the right construction and lay of the rope...the right grade of steel and size of wire for long-lasting resistance to the rigors of your particular service.

See your Wickwire Rope distributor or contact our nearest sales office.



A YELLOW TRIANGLE ON THE REEL IDENTIFIES WICKWIRE ROPE THE COLORADO FUEL AND IRON CORPORATION — Abilene (Tex.) • Denver • Houston • Odessa (Tex.) • Phoenix • Solt Lake City • Tulsa

THE CALIFORNIA WIRE CLOTH CORPORATION — Los Angeles • Oakland • Portland • San Francisco • Seattle • Spokane

WICKWIRE SPENCER STEEL DIVISION — Boston • Buffala • Chattanooga • Chicago • Detroit • Emlenton (Pa.) • New York • Philadelphia

WICKWIRE ROPE



PRODUCT OF WICKWIRE SPENCER STEEL DIVISION THE COLORADO FUEL AND IRON CORPORATION



Those men up on top may be the smartest, fastest crew you've ever hired . . . and yet turn in a poor day's work if you have trouble with the hoist. Because the tower is the lifeline that keeps materials moving; and *the hoist is the heart of the job*.

Chris Larson Co. of New Orleans used an American Model 75 on the Mayflower Apartments, shown above; and the operator commented that no other hoist could compare with the American in operation, safety, and long wear.

Why? The big difference, we believe, is in better basic design, created through long experience. That means stronger bed and side frames; external contracting band clutches; precision-cut steel gears; shafts that hold their alignment. If you want that kind of extra quality, and the better speed, accuracy and dependability that go with it, select your hoist from the broad American line. Your nearest American distributor can help you find exactly the model that's best for your needs.

3105

Modernize ... economize ... with

American Hoist

AMERICAN HOIST & DERRICK CO. • ST. PAUL 1, MINN.





D-C FIELD WELDING



RUN A-C POWER TOOLS



TAKE IT ANYWHERI

Look what you can do with the New Westinghouse Engine-Driven D-C Welder

Here is a lightweight, 200-ampere, gas enginedriven welder with up to 3-kw stand-by power all in the same unit. By simply plugging into convenient receptacles on the a-c power panel, the operator may obtain power for drills, grinders, pumps, lights and other electrical equipment.

LIGHT—The auxiliary generator power in this machine is gained at no penalty in weight. The 1,150 pounds represent the lightest possible engine-driven welder with stand-by power that you can buy today. The welder is rated at 200 amperes, full 60-percent duty cycle, NEMA rated, with a maximum of 250 amperes.

COMPACT—This self-contained unit is only 39½ inches from the base plane to the top of the lifting eye. Its over-all length is 62% inches. The welding generator is self-excited and close coupled to the driving engine.

VERSATILE—This welder is valuable in construction and maintenance operations on gas and petroleum pipelines, road-building projects, railroads—in fact at any remote site where there is no access to ordinary power supply. In disaster areas, this welder can power vital electrical equipment until normal service has been restored. The standard unit is skid mounted for truck transport or may be mounted on a high-speed, pneumatic-tired trailer.

For more information contact your nearest Westinghouse representative, or write to the Westinghouse Electric Corporation, Welding Division, P. O. Box 868, Pittsburgh 30, Penna. Ask for Booklet B-5455.

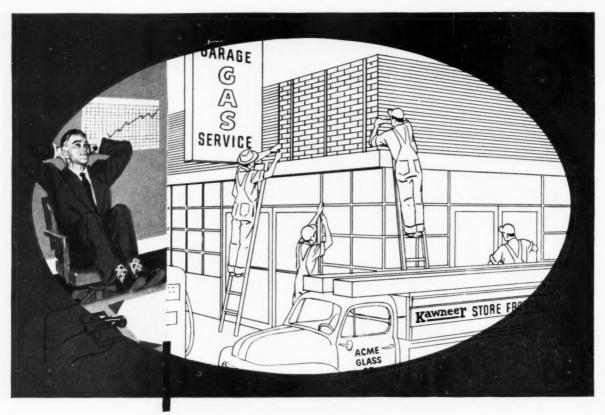
J-21710-

Only Westinghouse offers such EXCLUSIVE FEATURES!

YOU CAN BE SURE... IF IT'S Westinghouse

WELDING EQUIPMENT





Relax, Mr. Builder

Give Kawneer Your Service Station, Garage Front Installation Problems

If you, as a Builder-Contractor are erecting or remodeling service stations, garages and automotive showrooms, you can relax, and expedite building front construction problems by using Kawneer products and services.

Kawneer products, building front materials, doors and entrances, colored Zourite rust- and chip-resistant aluminum facing, and aluminum roll-type awnings are quickly and properly installed by Kawneer installing Dealers dividual jobs through Kawneer national sales and dealer organizations.
(3) Centralized warehousing and inventories—for quick delivery.

(4) Properly designed products adaptable to any kind of installation.

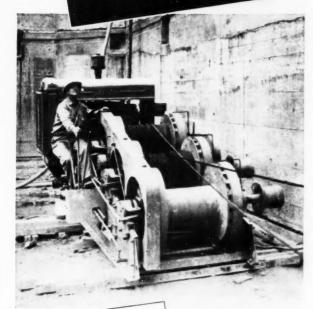
(5) Acceptability by architects and building owners.

(6) The broad Kawneer line of store front and entrance products which per-



Where power to the load-

MUST FAIL!



Clyde 3-drum Frame-6 Hoist equipped with Diamond Roller Chain as shown at top of page.

For Fast, Safe, Sure Hoisting, Lowering, and Spotting of Loads, DIAMOND ROLLER CHAINS Have Thoroughly Demonstrated

- V GREAT RESERVE STRENGTH
- **V** LONG-LIFE DEPENDABILITY
- V SURE, SAFE, NON-SLIPPING TRANSFER OF POWER FROM SOURCE TO LOAD

Without the utmost reliability of power transfer from source to drums, hoist operation cannot be safe, accurate or efficient. Diamond Roller Chains through the years have proved the value of uniformity-link for link,-of reserve strength and smoothness of operation. Being positive, without slip or creep, loads are lifted, lowered and spotted with precision.

Hoist manufacture may not be your problem, but the same dependability of power transfer that Diamond Chains provide is important on every type of machinery.

SHOT-PEENING SINCE 1944 Diamond Chain has long recognized that certain types of internal stressing of chain parts would increase fatigue resistance. To this end, link plates have been specially processed plates have been specially processed and chain rollers and other parts have been shot-peened since 1944.

Diamond Chain has improved the pin and bushing holes in the link plates by proper pitch hole preparation. Pins and bushings are case hardened.

DIAMOND CHAIN COMPANY, Inc.

Where High Quality is Tradition

Dept. 418, 402 Kentucky Avenue, Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER





ROLLER CHAINS





PUMP'S FINE TODAY ... BUT HOW ABOUT TOMORROW?

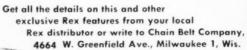
With Rex and only Rex

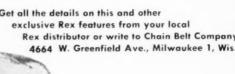
You're assured new pump efficiency for the lifetime of the pump because ...

ONLY REX HAS THE ADJUSTABLE AIR PEELER!

Every self-priming, centrifugal pump must have an air peeler to remove air from the suction line and create the vacuum that draws water up to the impeller. Normal wear on the peeler and fast-moving impeller destroys the necessary close clearances between these parts . . . reducing both priming and pumping efficiency.

Here's where Rex alone can maintain original priming and pumping efficiency for life. A simple adjustment of the exclusive Patented Adjustable Air Peeler and you've restored its original close clearance with the impeller. Just a twist of the wrist and you've restored new pump efficiency . . . for today . . . and tomorrow.









CONSTRUCTION MACHINERY

Del E. Webb Co. Speeds-Up FORT ORD CONSTRUCTION

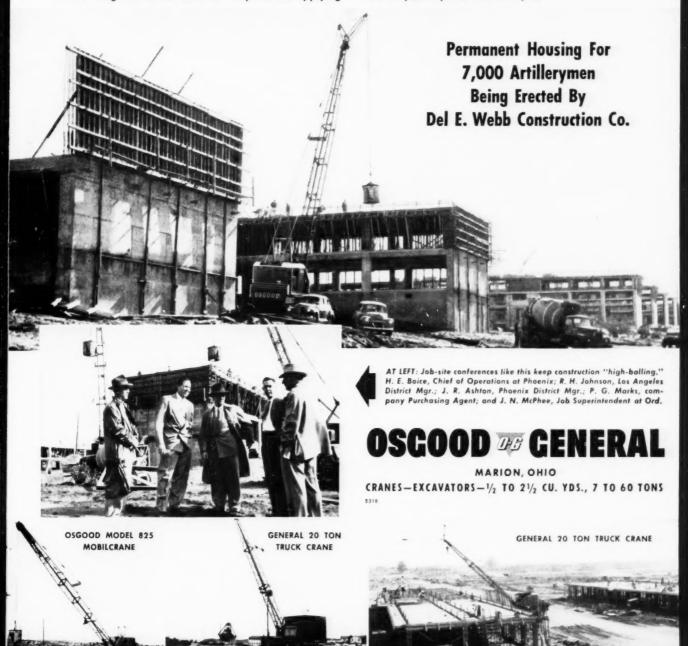
Modern Mass-Construction Requires Precision Engineering . . . Precision-built Equipment

History is in the making . . . Out near scenic Monterey—California's old state capital famed in Spanish, Mexican and U. S. history—a complete, permanent Army camp is mushrooming up out of an artillery range. The Fort Ord history makers are the hard-working men of the Del E. Webb Construction Co. . . . nationally known building firm.

These "Engineered-Construction" experts are applying

production line techniques to the building industry. Scientific planning, precision engineering, prefabrication, streamlined handling—make every Del E. Webb job a "booming" success.

The same techniques go into the production of all Osgood-General equipment. That's why the Del E. Webb Construction Co. uses Osgoods and Generals "on wheels" . . . to speed-up the Fort Ord job.





Duo-Way Scoop Model DS2B, with cable lift, has hydraulically operated steering, dozer and track tilt controls. Track may be extended for high lifts, then folded back for convenient moving from job to job, or for lifting in low clearance areas. Lift operates with track in either position.

Easy to Operate... A Glutton for Hard Work

- * Hydraulic power steering.
- ★ Heavy duty reversing transmission, 4 speeds forward and reverse.
- * 3-wheel maneuverability.
- ★ Operator sits sideways for full view of work both front and back.
- ★ Powered with heavy duty industrial engines.
- ★ Planetary drive with 3-to-1 gear reduction.
- * Drive or tow from job to job.

...The versatile machines with two "PROFIT ENDS"

For ability to do a multitude of construction jobs quickly and well, no other machine can match the Duo-Way Scoop. With standard equipment one end stockpiles, scoops, digs and loads. Quick change attachments make it into a mobile concrete pourer, a powerful fork lift truck or a fast, portable crane.

The other "business end" of the Duo-Way bulldozes, levels, removes snow, backfills. In between jobs, the Duo-Way can be used as a tractor to pull compactors and other heavy equipment.

Here is a compact, versatile tool that is job-engineered to serve the many uses of contractors, materials handlers, industrial and manufacturing plants everywhere.

To learn how the Duo-Way will boost the profit margin on your particular jobs, see your nearest Mixermobile dealer or write us for descriptive literature.



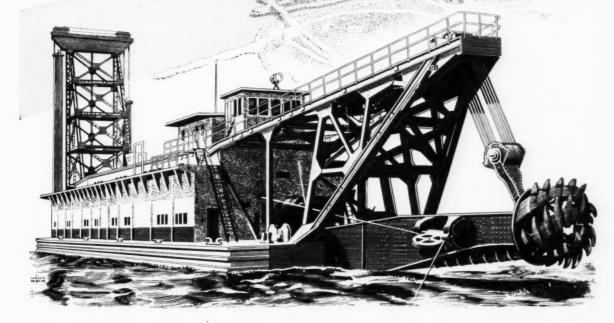
8027 M. E. KILLINGSWORTH STREET - P. O. BOX 7527 - PORTLAND 20, OREGON

Scoopmobile • Duoway Scoop • Dozermobile • Duoway Lift • Mixermobile

4-Wheel Drive Scoopmobile • 4-Wheel Drive Tractor
Towermobile • Stationary Mixer

Moving Day for the St. Lawrence

Shaded area shows additional facilities which will increase Beauharnois' production to more than 1,400,000 h.p.



MOVING A RIVER may sound fantastic, but the Ellicott-designed "Hydro-Quebec," world's largest hydraulic pipe line dredge, has begun work on a project that will eventually divert practically the entire flow of the St. Lawrence River! The project is part of the expansion program of the Quebec Hydro-Electric Commission. When completed, the Commission's installation at Beauharnois, Quebec, will be the largest single-site hydro-electric plant in the world, with electrical output of more than two million horsepower.

Main work of the "Hydro-Quebec" consists of widening

and deepening the 15-mile Beauharnois Canal to provide the necessary volume of water to operate the plant. This channel will also serve as a navigation canal which, when tied in with the proposed St. Lawrence Waterway by locks, will permit passage of ocean going vessels.

Whether your dredging problem is moving rivers or maintaining irrigation canals, or any of a thousand other projects, Ellicott's 67 years of experience in the engineering, design, manufacture, modernization and operation of dredges can help you. For more information about Ellicott dredges and dredging services, write for Catalog 825 to: ELLICOTT MACHINE CORPORATION, 1605 Bush Street, Baltimore 30, Md.

Ellicott Dragon® Completely New, Highly Versatile Portable Dredges

These low-cost, standard model Dragon hydraulic dredges are the economical solution for small jobs. They deliver 150-250 cubic yards of solids an hour, pump up to distances of 3,000 feet, and dredge to depths of 20-26 feet. Ideal for work on canals, lakes, harbors and rivers. For providing fill for swamps, beaches and dams. For more details, write for new Bulletin No. 826.



Ellicott Dredges

Balanced Design...

ONE REASON WHY BUCKES BLADES CUT ROADBUILDING COSTS

WHAT BALANCED DESIGN IS ... Bucyrus-Erie bull-dozers and Bullgraders are mounted on International TD-14A and TD-18A tractors so that the vital balance point of the tractor remains virtually unchanged.

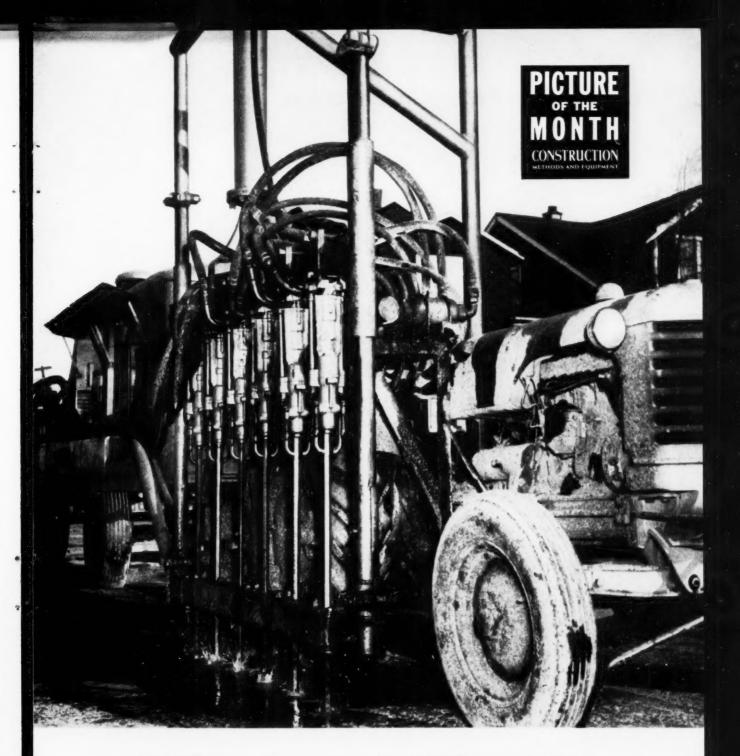
WHAT IT DOES... It means that the tractor retains all of its original tractive effort and maneuverability. It puts maximum driving force where it belongs—at the blade. Because there is always a full length of track on the ground, you take full advantage of tractor power and get fine, accurate control over the blade. Finally, there is less wear and tear on the tractor.

HOW IT CUTS ROADBUILDING COSTS... Better blade control and tractor maneuverability enables operator to produce accurate grading and fine finishing in a minimum of passes—you save time. Having the advantage of full tractor power lets you move more dirt on every pass and get the job done faster—you save money. Since there is no waste of tractor power, you save fuel costs. And lastly, because there's no upset of balance to strain the tractor there's less wear on tractor parts—you save maintenance costs.

Investigate these and the many other features offered in Bucyrus-Erie blade attachments. Get the complete story from your International Industrial Tractor Distributor today.

BUCYRUS-ERIE COMPANY, South Milwaukee, Wisconsin





Breaking Concrete Straight and Fast

CONCRETE STRIP REMOVAL is a smooth and fast operation when holes are drilled with a multiple pneumatic rig mounted on a tractor. The R. L. Coolsaet Construction Co. of Dearborn, Mich., had a 17-mi gas line job recently in the Detroit area. Much of the line involved cutting out concrete pavement strips to make trench excavation possible. The drill rig used, operated by one man, has six Le Roi-Cleveland H10 drills mounted on the side of a Le Roi Centaur tractor. Air is supplied at a steady 95 psi by a GM diesel-powered 600-cfm Ingersoll-Rand Gyro-Flo compressor towed along by the tractor. Drills are spaced on 12-in. centers, use water to wash out cuttings, and a central air cylinder controls simultaneous feed of each one. Drilling here is to a depth of 11 in., 8 in. of concrete and 3 in. of asphalt—accomplished in 1½ min. Holes 6 in. apart are placed by advancing the tractor 6 in. on one move and 5½ ft the next. Consistent spacing makes it easy to break the remaining web without leaving a ragged edge, which often damages curbing.

Construction News in Pictures...



HOSE STOPS DUSTING—A two-piece, telescoping rubber hose has eliminated the dust nuisance from primary crusher fines at the Kingston Trap Rock Co., Kingston, N. J. Formerly, falling fines often were blown all over the area. A section of Thermoid hose, 25 ft long and 7 11/32-in. OD, inside a larger 20-ft section, now confines them from the discharge chute. Length can be regulated to fit the height of the surge pile.



DIVER IN THE MOUNTAINS—Diver Berger Rorvik starts a 28-ft descent behind Van Arsdale Dam on the Eel River in the mountains of northeastern Mendocino County, Calif. His job was to repair steel grillwork around a power tunnel inlet that had been damaged by mountain debris lodged against it when the Eel River reached flood stage. Brush and debris had slackened power output on the other side of the mountain.—Wide World photo



economical bridge was used for electrical work under the roof by the Howard P. Foley Co. inside the new Link-Belt Co. plant at Colmar, Pa., recently completed by the Austin Co. A television tower section was mounted horizontally on two A-frames of welded channel

iron. Flanged wheels were put under the A-frames and the completed scaffold set up to roll along on crane rails already installed in the plant. Supporting cables and handrails for safety completed the scaffold bridge which gets credit for saving up to 50% in labor costs on installation of more than 1,500 light fixtures.

From the MORETRENCH ALBUM of Success Stories



Project: Interceptor Sewer - Newark, Delaware

Conditions: Fine to medium sand layered with clay. 35 foot cut, 17 feet of water.

Achievement: Moretrench Wellpoint System made it easy to "dig in the dry". Very steep banks, held up without sheeting.

This is just one of hundreds of case histories in the Moretrench Album. We'll be happy to show you others.

MORETRENCH CORPORATION

90 West St. New York 6 4900 S. Austin Ave. Chicago 38, Illinois 7701 Interbay Blvd. Tampa 9, Florida 315 W. 25th St. Houston 8, Texas

tive Geo W. CROTHERS Limited, Toronto, Ontario

Rockaway New Jersey





Talk about simplicity! It's hard to imagine an engine simpler than the P&H Diesel! If any service is needed, you work only with the part affected.

An injection pump, for example. Replace it separately - in a few minutes. You needn't replace the entire system. Or a scored cylinder: No need to take down the whole engine. A complete new cylinder head and liner assembly can be installed in 40 minutes. And if need be, you can take it from any other P&H Diesel. Think of the convenience. And the time saving!

And by the way: P&H's precision aluminum alloy bearings, with more generous bearing surfaces, have practically eliminated connecting rod bearing troubles.

Your nearest P&H Diesel representative can give you all the reasons why wise users are standardizing on this advanced line of Diesel engines. Or write us.

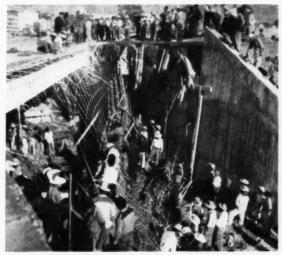


CRYSTAL LAKE, ILLINOIS



P&H Diesel Engines are built

CONSTRUCTION 'ROUND THE WORLD



FORM COLLAPSE — Accidental collapse of a form for a concrete overpass on the new Miguel Aleman Boulevard in Mexico City caused the death of one worker and serious injury to four others. The mishap occurred during the pouring of concrete. Investigation by city engineers has failed to disclose any reason for collapse of the form, and work has been resumed on the project across the belt highway.



BRICKS WITHOUT STRAW — To help solve the housing shortage in Africa, this machine turns out some 140 bricks per hr, from native soil. Unskilled workers can turn out perfect 12x6x4-in, blocks which are built straight into walls with only a "painting" of thin mortar between them. Soil used must have not less than 18% of clay and be stabilized with 2½ to 5% cement. Forming is done by hydraulic pressure.



DRAINAGE FOR AUSTRIA—Diesel-powered back-hoe purchased with dollars from Mutual Security funds busy carving a drainage ditch with neatly sloping sides to reclaim farmland out of an unproductive swamp in Austria. Generally, ditches are excavated 5½ ft deep and about 1 ft wide at the bottom. Pipelines are

laid into the field ditches to carry excess water to channels leading to streams or rivers. This project is part of a long-range reclamation program that eventually is expected to reclaim nearly 2,000,000 acres to help ease the country's land-hunger dating back to World War I.—Eastern Publishers photos

— TO THE CONTRACTOR and HIGHWAY ENGINEER

FOR years highway engineers have been working toward the elimination of road forms, and at the same time building a road that was known to be definitely level on both sides of the longitudinal joints.

Accuracy could be obtained at the shoulders with a line. The thickness of the course could be ascertained with a gauge but a line at the center of the road for establishing an absolute level was obviously impractical. Up to now, even with the most modern equipment, to arrive at any approach to accuracy in maintaining the level of a black top course over its full width was no more than a reasonably good guess. Matching devices can assure that one course will match the other course at the joint. In other words, both parallel courses will be the same depth where the courses abut, but the course at any given point may have a roll in it.

The shoulder remains true because of the line—The longitudinal joint can be tight—But, the center of the road is veiled in mystery insofar as its level qualities are concerned. There has been no means to correct the roll and dips that won't show under a straight edge.

Now, for the first time in the history of paving this situation can be corrected and it is possible for the contractor and Highway Department Engineers to know exactly what the condition of the road surface is insofar as its level characteristics and slope are concerned.

The direct-lift, one-piece-unit Cutter Bar Screed of the Adnun Black Top Paver has made possible the application of a Fluid Level to black top paving. The Fluid Level can be used either with a line for a primary setting along the edge of the road or without it. A simple, accurate device, it serves the purpose of leveling up a road course just as a carpenter uses a level to level up a structure. It permits correcting for any desired slope at any station. It permits holding an absolutely level grade without modifying the desired crown. It permits leveling up old shoulder and blending it into the crown, but most important of all it takes out the dips that won't show under the straight edge and it gives you absolute control of the laying of the center of the road. With the Adnun Fluid Level you both match and joint and take out all the undulations on each side of the joint! Your road is as level and true at the center as it is at the shoulder.

The Adnun Fluid Level should be standard equipment on every black top spreader. It means better, smoother, longer life roads for the State and County. It means less waste of material, smoother running jobs and better work acceptance for the contractor.

The season is opening! Now is the time to get the full story on this Adnun device. Write for details.



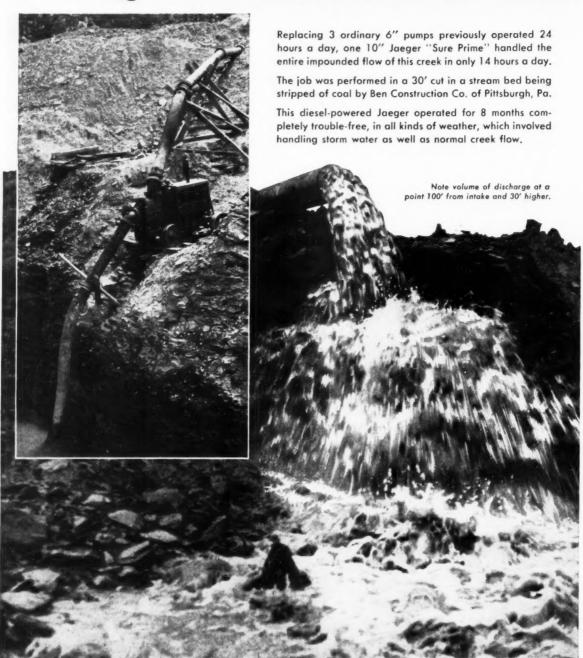
BLAW-KNOX

FOOTE CONSTRUCTION
EQUIPMENT DIVISION
OF BLAW-KNOX CO.
1910 State Street,
Nunda, New York





10" Jaeger lifts creek over 30' bank



Jaeger Pumps pull stronger and pump longer because they are built oversize with larger shells and impellers, have two priming actions, and are generously powered with engines of the highest horsepower applicable. Prime without vapor lock, sustain efficiency on non-stop pumping, and give thousands of hours more service from pumps and engines.

Dewatering Pumps to 10" • Pressure Pumps to 275 lbs.

See your Jaeger distributor or send for Catalog P-10.

THE JAEGER MACHINE COMPANY

800 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS . CONCRETE MIXERS . TRUCK MIXERS . PAVING MACHINERY

Asking for Trouble

JUST YESTERDAY we listened to news of a terrible tragedy broadcast over television and radio—13 construction workers killed in a fire at a brewery addition job in Newark, N. J. The cause: Fire in a cork-insulated wall started, according to press reports, by a welding torch. At the same time this awful news was being broadcast, an other fire report was flashed over the air, a multiple-alarm fire on a pier in lower Manhattan, reportedly caused by a welder's torch.

When, oh when, are you contractors going to realize the lethal potential of the welding torch?

Thirteen dead in Newark, thousands of dollars damage in New York—similar reports steadily pour in from all over the country. Why? Because some of you fellows are just too damn careless with torches, and you don't stop to realize the consequences of that carelessness.

Remember the Normandie? The biggest ship in the world fire-gutted and sunk because of a carelessly handled torch. That cost the American public millions of dollars and the loss of a desperately needed war transport.

Let's get smart, fellows. Let's realize the terrible possibilities of careless operation of welding and cutting torches. Let's just sit down and figure out how we can prevent the lethal consequences of reckless torch use.

Let's get this foolish situation under our own control. If we don't, we can expect a host of laws, rules and regulations stemming from every source local, state and national. The public simply won't tolerate the hazard of uncontrolled torch burning, and we had better realize it right now 'ere it is too late. How would you like, for example, to have to get a permit for every torch use just like you do for use of explosives?

What to do? Why, simply exercise some common-sense direction and control over all your welding and cutting operations. Sure, we realize that much of this work is done by your subcontractors. So what? You're the general contractor on the job. You have the prime responsibility—else why are you on the job?

So it's up to you to see that your own gangs, and those of your subs, carry out all their operations in a safe and sane manner, and that goes double for the more hazardous work, such as torch use.

Here are some precautions that common sense alone would seem to dictate: Whenever possible, set up your burning and welding operations in a place apart from the rest of the work, where fire hazards don't exist, or can be controlled easily. A separate shed of fireproof walls, with concrete or earth floor, is ideal as well as inexpensive. Of course, it is often cheaper and more convenient to take the torch to the work instead of the work to the torch. But you may be surprised to discover how a little advance planning and forethought can result in channeling a major part of welding and cutting operations through a central shop.

If necessary to weld or burn over inflammable material, why not take a moment to spread a fireproofed tarp below the torch job? Sparks from torches sometimes fly a long way, and smolder for minutes before either dying out or starting a fire. We've shuddered to see torches used on wood scaffolds with the planking smoldering and often bursting into small fires. Sure, most of them are stamped out, but what if one got out of control where men's lives are at stake?

Again, cutting and welding must, at times, be done among or close to combustible materials. Apparently that was the case at the Newark brewery, according to press accounts, where pipe welding was being done close to corkinsulated walls. In that case it wasn't the fire alone that killed 13 workmen; most of them were trapped inside tanks and were suffocated by smoke.

Hard to foresee such an accident? Certainly! But it's time the construction industry did a little more foreseeing of possible accidents, and hazards of torches are surely easy to see and their consequences to contemplate.

Obviously, when torches must be used in such hazardous situations, the simple precaution, besides utmost care, would be to have a fire extinguisher available for every torch. And if the risk of fire is extremely great, as it so often is, to assign an extra man to the extinguisher.

Surely, saving of lives on construction, to say nothing of heavy financial losses and disruption of operation schedules, is worth a little planning, attention, forethought and even some extra expense.

Every torch-started construction fire is a disgrace to our industry, every loss of life resulting therefrom is a senseless, unnecessary tragedy. If you contractors will combine your intelligence, common sense and experience with a determined attitude to prevent torch fires, we'll have no more of them.





EVERYTHING UNDER CONTROL here as forms go up for concrete walls and floor of intake tunnel many feet lower than the river at right—in soil stabilized firmly by electro-osmosis. Precautionary

wellpoint system around inner excavation was not needed. Lowamperage dc current at 80 v stabilized the entire silt deposit within the big cofferdam, eliminating trench sheeting and bracing.

Electric Curtain Stabilizes Wet Ground For Deep Excavation

By HAROLD W. RICHARDSON, Editor

IT'S WEIRD AND UNCANNY! Almost unbelievable! But electric current from several motor generator sets passed through the soil from pipe anodes to wellpoint cathodes, driven around the perimeter of 210x280-ft plot, has changed a treacherous wet soil into firmly stabilized ground that permits excavation of a trench 21 ft deep without sheeting or further dewatering.

This is all taking place at the John C. Weadock generating plant of the Consumers Power Co. at Essexville, Mich., near Bay City, where excavation and foundation preparation are now under way for

addition of units 7 and 8 to the existing plant.

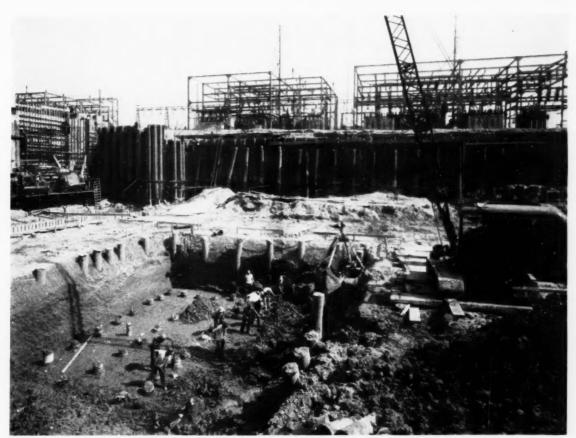
To obtain an unlimited supply of condensing water, the plant is located parallel to and only 40 ft away from the Saginaw River. River level is only 3 to 4 ft below natural ground level. At the site the top 18 ft of ground is a saturated sand, underlain by 13 ft of sandy silt, then 19 ft of soft, peaty silt, followed by a deep layer of water-bearing sand (see log in sketch, p. 54).

For the previous six units, built at various times in three stages, a heavy concrete mat was placed just below bottom of top sand, supported on piling, but the deep trench for the condensing water duct had to be excavated well into the silt layers inside of an inner cofferdam.

Each time, this trench was dug out with considerable difficulty.

The foundation situation for new units 7 and 8 threatened to be even worse, as the units are much larger (135,000 kw against 60,000) than their predecessors, calling for a lower general slab and a deeper duct. Consumer engineers and the contractor figured they would somehow bull their way through the bad ground.

Herlihy-Mid Continent Co. of

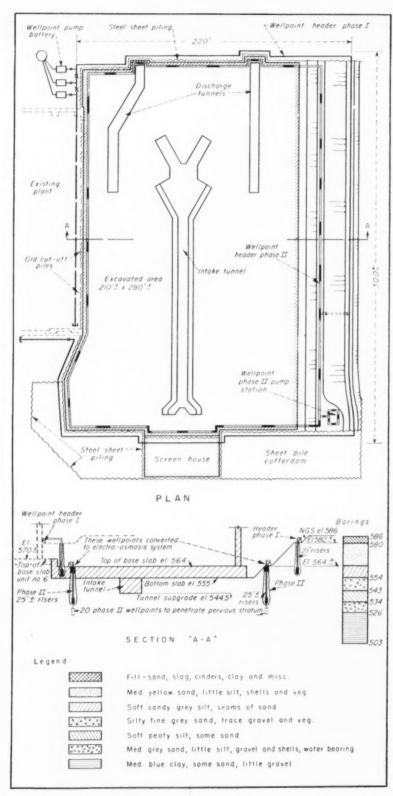


ELECTRO-OSMOSIS changed a saturated, unstable silt deposit into stable, dry soil that could be excavated without protection of sheet-

ing for condensing water intake tunnel at the John C. Weadock generating station addition near Bay City, Mich.



HERE'S WHAT SOUPY SILT looks like after being treated with electro-osmosis. The intake tunnel is being excavated with clamshell and clay spades, walls standing straight up without shoring or bracing.



SCHEMATIC SKETCH of the dewatering system installed around plant extension site. Phase II of the wellpoint layout was converted to the electro-osmosis system by utilizing wellpoints 20 ft apart as cathodes, and driving pipe anodes in between cathodes. Electro-osmosis sets up overlapping, irregular-shaped electrical fields throughout the fine-grain silt deposits, stabilizing the soil all over the enclosed area.

Chicago, general contractor for the new addition, started work a year ago in January. First step was to strip the site 3 or 4 ft from ground level El 586 down to water table (river level) at El 583, exposing the top sand layer. A Griffin well-point system was then set up around the entire perimeter, 220x 300 ft, to unwater the sand down to El 565.

Under protection of the well-point system, second-stage excavation proceeded, removing all sand and a little of the silt down to El 564. Meantime, a double wall of sheet piling was driven as a cofferdam along the West river end of the lot, and a single row of sheeting was driven across the opposite end to protect an existing sub-station

Upon completion of excavation to El 564, Raymond Concrete Pile Co. moved in to drive shells for cast-in-place concrete piles.

The Third Stage

Third-stage excavation was to remove the top 9 ft of the sandy silt formation down to El 556, just below proposed base of foundation slab. Before long, a row of cut-off sheeting was driven along the existing building line, giving sheetpile protection around three sides of the lot.

Excavation of the third stage was started, but not for long. As the hole was deepened on the opposite side of the lot from the river, in front of the sub-station, the line of single sheeting there started to move in. The hole was backfilled hastily to El 565 to stop this movement.

Wellpoint Dewatering Corp., the contracting subsidiary of Griffin Wellpoint Co. of New York, held a separate contract for dewatering the site. Griffin was familiar with ground conditions at the site, for they had been in on the three previous construction stages.

They installed the first set of wellpoints to drain the top sand layer, and then put in another set of wellpoints, all around the lot, from the El 565 level, penetrating to the water-bearing sand beneath the silt, EL 533, to relieve much of the uplift pressure. Wellpoint Dewatering had figured on using this second set of wellpoints as a vacuum process for dewatering the silt.

But when the sheeting moved in, it was apparent to all concerned that the saturated silt couldn't be handled by any ordinary means, or even by the vacuum wellpoint



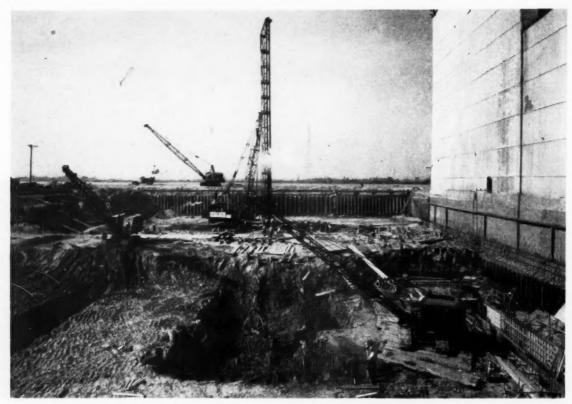
FULL LOT was excavated to bottom of top sand layer, 22 ft below natural grade, in first two excavation stages under protection of full enclosure wellpoint system. Here's how the job looked at that ft lower because of increased size of units.

stage, with cofferdam along river being driven. Foundation slab of existing plant is visible under building; new slab and tunnels are 10



FIRST EXCAVATION after electro-osmosis had stabilized wet silt formation was in outlet tunnel alongside old plant. Single wall of

sheeting in foreground, protecting switch yard started to move in when silt was being excavated before stabilization.



EXCAVATION stages are clearly shown here. Piledriver is working on top of silt layer, now stabilized by electro-osmosis. Half of lot in foreground has been excavated through 9 ft of silt for foundation

slab. Clamshell and dragline are excavating trenches for tunnels. Nice, dry job! Before electro-osmosis was applied, saturated silt had begun to push in trench sheeting.

system — especially those deep trenches for the condenser ducts.

Sometime ago, Wellpoint Dewatering Corp. had made exclusive arrangements with Dr. Leo Casagrande to handle and promote the little-known electro-osmosis system of fine-grain soil dewatering and stabilization. Dr. Casagrande, soils scientist and brother of another famous soil man, Dr. Arthur Casagrande of Harvard, had developed this system and holds patents in America and abroad on certain features, and has several more patents pending.

He had adopted this long-known, but little-used, principle of electrical physics to soil stabilization on four previous occasions in Europe. Stabilizing excavation for U-boat pens in Norway during the war was his most notable achievement along these lines.

Dr. Casagrande, as consultant to Wellpoint Dewatering, and other officials of the company, made a proposition to Consumers Power Co. to stabilize the silt layer by electric-osmosis.

Here's what they did, and here's what happened. Later on we'll try

to explain the scientific principles of electro-osmosis soil dewatering and stabilization.

They converted the second-stage wellpoint system into an electro-osmosis system by utilizing wellpoints about 20 ft apart as cathodes, or negative poles. In between these points they drove pipes as anodes, or positive piles.

A battery of motor-generator sets was hooked into the system to furnish dc current at 80 v and relatively low amperage. Although the electro-osmosis process will force water to the surface through open wellpoints, header and pumps were used at first to aid in water disposal and to reduce the voltage otherwise required.

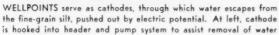
The effect was astounding. Before long water began to dribble out of the wellpoints, and to bubble out at the surface around the points. In 3 or 4 days, the quaking, saturated silt began to solidify into a stiff sandy-clay formation. Piledrivers resumed work and excavation of the third stage, through 7 ft of former sloppy silt, was carried down to desired slab grade without further trouble.

But there was still another 11 ft of excavating to be done for the duct trenches—through the middle of the lot and a long way from the electrode system along the sides. Just to make sure, an inner set of electrodes was installed just outside of proposed trench lines for further stabilization, if needed. But to test the main system to the utmost, excavation of the trench was started without turning any current into the secondary system.

The current never was turned on in this last group of electrodes. The main system had stabilized the entire silt deposit within the cofferdam so completely that excavation could be carried down with straight walls without any sheeting or bracing. In fact, clay spades were necessary to trim the vertical walls, while the trench excavation was taken out with clamshell buckets.

Current was kept on the electrodes 24 hr per day, 7 days a week, though later on the voltage was reduced to 60 v. Investigation showed that the stabilization was greatest nearest the electrodes, and lessened somewhat out toward cen-







and permit use of lower voltage, but note how water is bubbling up around the pipe. At right, header system has been removed, and water dribbles out of open-top wellpoint, freezing into an icicle.

ter of lot—but it still was sufficient to hold firm 18 ft of former treacherous silt.

In original state, the silt contained from 30 to 50% moisture. Although no tests were made to reveal the exact reduction of moisture resulting from electro-osmosis, it was observed that only a slight reduction increased the shearing strength of the soil many fold. The longer the current was kept on, the drier the material became, resulting in increasing shearing strength.

One big difference of this system, in contrast to orthodox wellpoints, is that under electro-osmosis the system can be shut down for a time for generator repairs without the soil being affected.

Severe electrolysis is set up around the electrodes, especially affecting the anodes. Many of the original pipes were so badly corroded that they had to be supplemented by heavy reinforcing rods driven down inside the pipes. It will be interesting to note the condition of the sheet piling when pulled.

Water seems to dribble from the cathodes, in slowly decreasing

quantities, as long as the current is on. When we visited the project on March 9, all piles had been driven, the floor and walls of the duct trenches had been poured, and about half the base slab, from trenches to old plant, had been placed. Current to electrodes along the old building wall and part way across adjacent ends had been discontinued.

Some of the remaining electrodes had been disconnected, though those still hooked up were discharging a small amount of water. The rest of the slab was yet to be poured, and excavation — with clamshell and clay spades—was under way for some deep sump pumps—again without sheeting or any ground support.

Dr. Leo Casagrande explained the principles of electro-osmosis stabilization of soils in a paper presented before the Structural Section, Boston Society of Civil Engineers, on January 10, 1951 (Reprinted from the society's Journal, January 1952, as Harvard Soil Mechanics Series, No. 38).

Skipping a lot of high-powered mathematics, we'll try to present Dr. Casagrande's explanation of the physical principles involved. Remember, we are talking only about fine-grained silt and clay soils, where the pore size is microscopic and water movement is by capillary action.

In 1807 one Reuss discovered that if an electric potential is applied to a porous diaphragm, the water moves through the capillaries toward the cathode; the water flow stops when the current is turned off.

In 1879 one Helmholtz explained this phenomenon mathematically (which we aren't going to do). In a cylindrical capillary tube filled with water, we must distinguish between the free water and a boundary film of water adjacent to the capillary wall—this last Helmholtz called a "double layer" because he assumed the existence of opposite electric charges on two layers forming the double layer.

One part of the double layer, very thin in comparison with total thickness of the double layer, and which carries the negative charges, is rigidly attached to the wall. The much thicker part of the double layer, carrying the positive charges, is movable.

When an electric potential is applied to the capillary, the positive charges move toward the negative pole, dragging the water molecules of the double layer along with them. In turn, the cylinder of free water, completely surrounded by the double layer, is also dragged along. This phenomenon is known as electric-osmotic flow.

That's the simple explanation of the process. If the cathode is open to admit the flow, such as a wellpoint, the water will be forced into the pipe and up to the open top with an unbelievably high pressure—up to 6,000 psf.

As the capillaries are freed of water, they shrink, and thus the ground consolidates and becomes stabilized. As an experiment, one cathode was extended 20 ft above ground, and water still dribbled out of the top in undiminished flow.

It seems to us what happens is that the current forces the water out of the capillaries and drags the hole in behind it. Or maybe it isn't that simple!

Much To Be Learned

For the Consumers Power Co., with headquarters at Jackson, Mich., James Campbell is vice-president in charge of construction, Walter C. Schmidt is general supervisor of construction, and Carl C. Meador is general construction superintendent, generating plants. Jerome D. Lescoe is field construction superintendent.

For Wellpoint Dewatering Corp., Richard Loughney is chief engineer and Ray Bratton is superintendent of wellpoint dewatering. For Herlihy-Mid Continent Co., Robert J. Zimmerman is construction superintendent.

Even the experts hesitate to predict the full possibilities of electrosmosis in soil stabilization, but obviously it has applications in tunnels and mines where wet, finegrained soils are encountered, as well as in open-cut work.

Voltage and amperage requirements and spacing of electrodes can be determined to some extent by laboratory analysis of the soil to be treated, but experimenting under actual field conditions probably will dietate the various combinations for best results. Costs compare with wellpoint dewatering.

The record shows that at the John Weadock plant an electric curtain made bad ground lie down and be good, and kept the Saginaw River from moving into the deep hole.



WHO COPIED WHOM? This 25-ton rear-dump earthmover, exhibited at the Leipzig Fair in East Germany last fall, is reminiscent of some popular haulers built in the U. S.

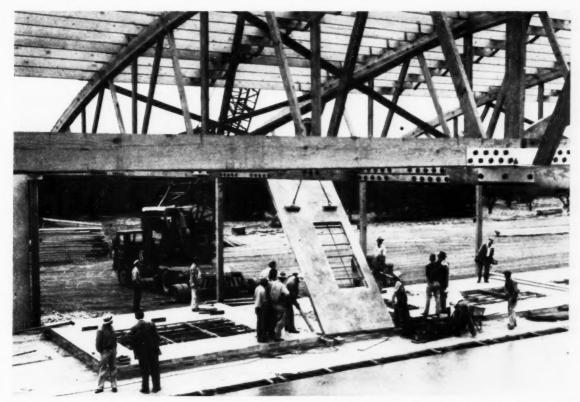


EAST GERMAN CRANE has a 16-ft boom, 5-ton capacity at highest elevation, 21/2 tons at lowest point. Power is diesel-electric with a 30-hp engine; top speed is 6 mph.

East German Regime Manufactures Construction Equipment, Too

EVIDENTLY it is not all atom bombs, military tanks and MIG 15 jet fighter planes on the far side of the Communist barbwire in Europe. Last year the Soviets tried to revive the Leipzig Fair, which was an outstanding trade exposition before the war.

Several pieces of construction equipment were shown, said to be manufactured in the Soviet Zone, and shipments reported to be going entirely to the Eastern Bloc countries where needs are great. McGraw-Hill World News got the pictures for us, but there is mighty little information on specifications. The 25-ton dump truck in the top picture could almost pass for a Euclid end-dump. Lower photo shows utility crane available either on solid or pneumatic rubber tires, and longer booms are available. Maker is Ausrusting von Berghau und Schwerindustrie (ABUS), Merseberg.



HERE, a 20-ton crane, equipped with a walking outrigger, has only two lines attached to a small poured wall panel. It is just about

ready to be twisted and snaked out of the building structure where it will be placed into position.

New Twist in Wall Construction Pays Off

FACED with some special problems in the construction of a \$500,000 laboratory being built for Sylvania Electric Products Co., at Sunnyvale, Calif., John J. Moore Co., contractors of Oakland, Calif., helped solve these problems with a new "twist" in wall construction.

The biggest factor facing the John J. Moore Co. on this job was to cut down construction time. Sylvania was pushing them and wanted the building to be erected quickly, because of government contracts Sylvania had to finish. Moore had to get the building up fast, particularly the roof, because the winter rains were about to set in.

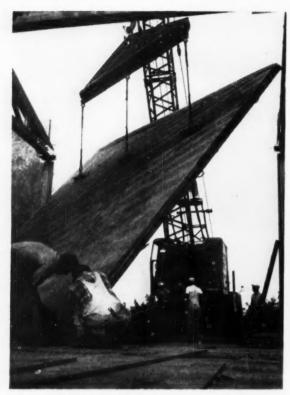
Departs From Tilt-Up Method

With these problems facing him, President Maxwell Reid, of John J. Moore Co., ordered the roof constructed first, departing from the usual tilt-up method. The wall panels were then poured inside the partially completed building structure. Mr. Reid admits he was a little nervous when the first big 12-ton poured panel was carefully lifted, snaked out and twisted. After the first one went out unscathed, however, it was a cinch for the others.

Here's how it was done: First, wood framing for the 350x100-ft building was erected with 8x8s forming the main roof supports. The floor slabs were next poured and permitted to set. Then pouring for the



WITH THREE CABLE LINES firmly attached to this 20x21-ft panel the crane makes the first lift of the 10-day-old 12-ton wall panel.



IT WAS TRICKY BUSINESS tilting the slabs up to 45 deg and snaking them out of the building structure. It took a steady lift on three points to prevent damage to the panels.



ONLY 13 MIN after lifting operations were started, the panels were tilted, twisted and moved out through the narrow roof supports without so much as a scratch.



THE ENTIRE CREW breathed easier when the wall panels were moved into final position and securely bolted into place.

concrete wall panels was started. Forty-four in all, the panels were 6 in. thick, measured 20x21 ft and weighed 12 tons each. A period of 10 days was allowed for curing each panel.

When the panels had completely cured, Irwin E. Burrell, crane superintendent of Bigge Crane and Rigging Co., moved on to the job with a Model 180 Bay City 2-ton truck crane equipped with a walking outrigger. The crane poked its boom between the roof supports, and workers attached cables to the panels at three points.

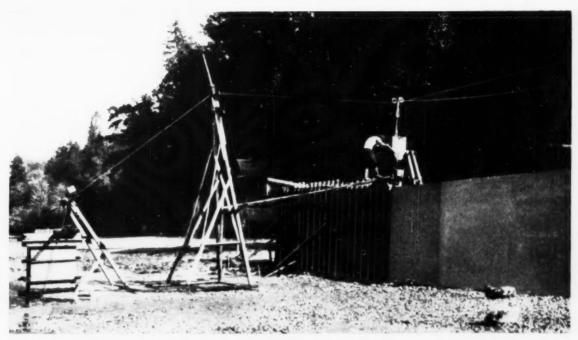
Saves 60 Construction Days

Inside the structure, a C50 Autocar truck-tractor equipped with a winch, worked with the crane in "leading" on the difficult twisting job required to snake the panels out of the structure. Each panel had to be tilted to a 45-deg angle and then snaked out backwards between the roof supports, which measured considerably less than the wall panel widths.

Once the panels were outside the structure, it was a simple job to move them into place and bolt them in four places to the wall columns.

According to the contractor, the elapsed time for placing each panel was 13 min, as compared to 2 min in a normal tilt-up job. Using this twisting method about 20 panels were placed each day.

In over-all construction time about 60 days were saved and in cold hard cash, the contractor was approximately \$25,000 ahead. The John J. Moore Co., was gambling for big stakes, but the gamble was reduced to a sure thing with this novel construction method.



CONCRETE IS DELIVERED to the wall forms near the tail tower. Carriage with loaded bucket comes down hill by gravity and air

tugger pulls empty bucket back. Movable tail tower has a plywood box, filled with sand, for counterweight.

Little Cableway Places Concrete



CONCRETE POURS from hand-dumped 4-ft bucket into form chute. A chain hoist connects the bucket to the cable carriage and is used to adjust bucket height. Wall is 210 ft long, rises 8 ft above grade on a 3-ft footing, later was backed up with 1,000 yd of fill.

A 4-CU FT BUCKET, hung on a two-wheel trolley riding a \(^8\)-in. wire rope, recently poured a concrete retaining wall that consumed \(^65\) yd of \(^6\)-sack mix—on a job contracted by Robert S. Stright, Winslow, Wash.

All materials handling was by this light cableway because the nearest access road was 325 ft away and at an elevation 125 ft above the job site. The cable was anchored up the hill and a movable tail tower set up which used a plywood box filled with sand as its counterweight. Tower shifting could be accomplished easily when the sand ballast had been shoveled out of the box.

Power to pull the carriage was obtained from a Sullivan air tugger with a drum speed of 225 fpm. The tugger was located about half way up the hill and handled the 44-in. snatch line through a block at the mixer.

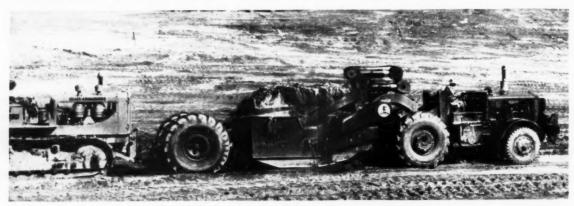
The hand-dumped concrete bucket was filled with batches from a Jaeger 4S mixer. After becoming familiar with its handy little production rig, the 5-man crew settled into a fast cycle that poured an average 1 cu ft per min.



Space units properly . . .

Schedule scrapers to get to the loading area at the right time without getting into the way of another rig or delaying one waiting in

line. Where machines are being push-loaded, synchronize with the pusher—as these two Caterpillar DW20s are doing at Fort Randall Dam in South Dakota.



Get loaded fast . . .

Load downhill whenever possible. Normally, I min should suffice to get a heaped load in 100 ft or less. Don't waste time trying to get that extra cubic foot of dirt—unless the haul is extremely long. Euclid scraper and Allis-Chalmers crawler heap it on at a North Carolina airport.



Travel in top gear . . .

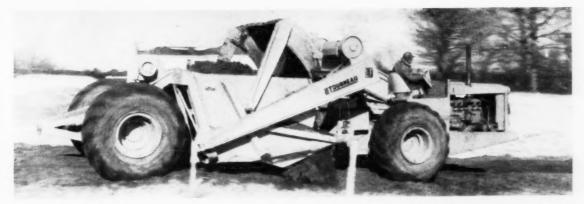
When you're loaded, get going! But it takes a hard and well-maintained haul road to get the best speed and roadability. This may

require the services of a grader and sprinkler wagon to do the jobright. This Caterpillar DW20 zips along with a load for an earthfill dam in California.

Ten Ways to Cut Cycle Time

MORE YARDS PER HOUR is the objective on every earthmoving job, with many variables to be reckoned. But, once equipment is on the job, cycle time is the variable that controls production—if the number of vards per load remains constant.

LeTourneau field engineers, out of their wealth of experience with earthmoving operations, have com-



Spread in highest gear . . .

The material being handled governs the rate of spread to a certain extent, but don't lose valuable time inching along the fill letting

the load dribble out over an unnecessarily long distance. This Tournapull holds to a fast pace and its load is ejected rapidly, resulting in fast and even spreading.



Leave fill rapidly . .

Swing right back on the haul road as soon as possible after the load is dumped as this Cat DW20 is doing. Plan the exit from the fill to

avoid traveling over soft ground and around obstacles. One extra load per hr from each rig can increase production, and profits, appreciably each day.



Lose no time on turns . . .

The operator should make his turns at the shortest angle possible and at the highest speed consistent with safety. A Tournapull work-

ing in a tight spot on a New Jersey Turnpike job illustrates how power steering makes substantial savings of time possible on turns. Eliminate intricate turns on haul roads.

piled 10 ways to cut cycle time to the minimum. Six of them are described with the pictures above. Here are four more.

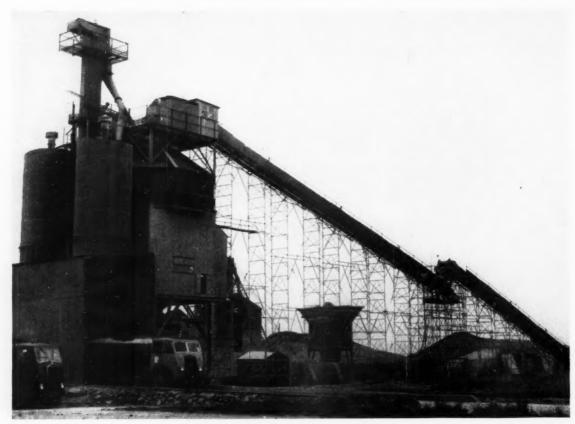
Plan the Job—Lay out haul roads so that no time is lost with trick maneuvers and avoid unnecessary grades.

Lug Only When Necessary-Even though your ma-

chine can do it, it is better to shift to a lower gear for the sake of better acceleration.

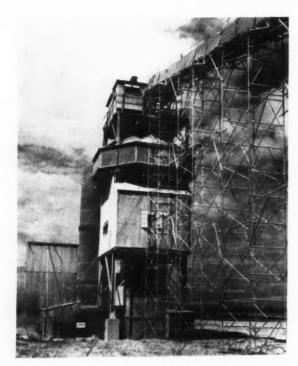
Use Preventive Maintenance—Head off machine downtime with regular checkups and lubrication.

Crew Cooperation—The smart operator will play ball with the rest of the crew and assume his share of responsibility to keep the job going.



AGGREGATE CONVEYOR 230 ft long, rising 60 ft, feeds batch plant from stockpiles in rear. It is supported on steel scaffolding

and guyed laterally. Bulk cement is brought in by trucks and delivered to batcher and two storage silos by bucket elevator.



DRY-BATCH PLANT handles aggregates and cement at same time, has six-compartment, 200-ton storage bin for aggregates.

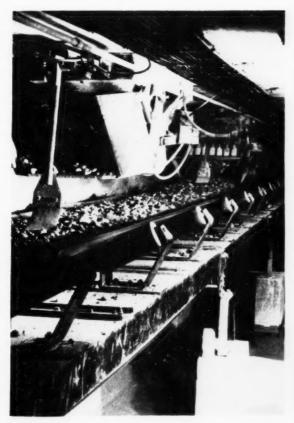
Site Batch Plant Supplies Two Pavers

By JOHN GRINDROD

HIGHLY MECHANIZED concrete production and placing have been given new impetus in England under the lash of construction for defense. A typical example is the modernizing and enlarging of runways and aprons on airfields which must bear up under the increasing loads of larger and faster aircraft.

Outstanding in this respect is a job under contract by John Laing & Son Limited, London, which not only combines the use of American, British and Belgian spreading and finishing machines, but features an ingenious method of weigh-batching with a plant specially designed for the job.

In fact, two batch plants are at work. One is a standard Blaw-Knox plant with two aggregate batchers and a cement plant. This is used chiefly for making lean concrete, though it can also be used for the intermediate and top slabs. Fed by clamshells, it is intended for use with one paver. When only lean concrete is required, it can keep two pavers busy at a little less than maximum output.



TUNNEL CONVEYOR receives aggregates from stockpile overhead by way of 14 electro-pneumatic and 4 manual gates.



SELECTOR CHUTE receives aggregate from conveyor, can be swiveled to funnel stone and sand into any of six compartments.

It is the second plant, handling aggregates and cement at the same time, which is of particular interest.

With an over-all height between 70 and 80 ft, the plant consists roughly of three parts: batching and weighing compartments, cement storage and feed, and conveyor from the aggregate stockpile. It is built up of corrugated sheeting and steel plates on a girder framework.

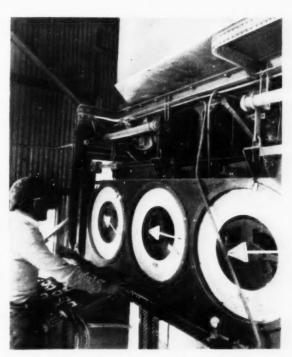
Of particular interest is the aggregate conveyor which is supported entirely on steel scaffolding. A number of wire stay ropes on each side of this 230-ft long conveyor help to brace it in position.

From a height of 60 ft where aggregate is discharged from the conveyor, the materials pass through the batch plant by gravity, being released from a large six-compartment storage bin for aggregates, with a total capacity of 200 tons, and one for cement which holds 30 tons.

Large ground storage bins of a total capacity of 10,000 tons are used for the stockpile of aggregate and sand. Three sizes of stone are used. Delivery from the stockpile is by way of a 30-in. conveyor belt.

This operates inside a tunnel 200 ft long and 7 ft high by 7 ft wide, constructed under the storage bins. The roof of the tunnel (and the floor of the bins) contains 18 doors through which aggregate is fed to the belt. Fourteen of these are controlled automatically through electro-pneumatic valves by a selector switch mounted in a cabin on top of the plant.

The other four doors are for use in case of emergency, and each one can take a different size of ag-

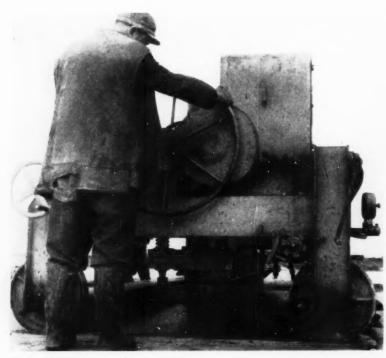


SINGLE OPERATOR controls three side-by-side weigh-batchers.

Outer dials indicate aggregates, center one is for cement.



MIXING AND PLACING of concrete on the field is by two. Two-compartment batch trucks run a shuttle haul to the skips Koehring Twin-Batch pavers that put out from 150 to 180 yr per hr. from the batch plant showing in the right rear background.



FINAL MACHINE is a Belgian S.G.M.E. joint cutter fitted with a vibrating knife. Just ahead are a Blaw-Knox spreader and a Stothert and Pitt finisher.

gregate stone. These are handoperated. A bulldozer is used to move aggregate inside the bins.

The horizontal belt takes the aggregate to the two-section inclined belt operating at right angles to it. Discharge into the high-level storage bins at the batching plant is by way of a swiveling selector chute which pivots to feed storage compartments as required.

Cement reaches its storage bin by bucket elevator after being discharged from trucks into a 15-ton feed hopper.

From the head of the elevator a three-way valve operates to deliver the cement either directly into the 30-ton cement compartment of the batching storage bin or into either of two storage silos.

The feed valve for these three storage units is regulated automatically by electro-pneumatic control, operated by high level probes set in the bins. The switch can operate in two ways so that the batching unit, which is given priority flow, is always maintained

(Continued on page 68)

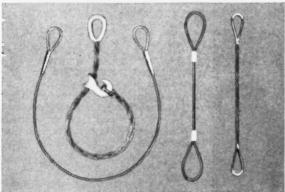


PREFORMED INTERNALLY LUBRICATED

Wire Rope

for cranes, hoists, elevators, and all equipment

From Macwhyte's complete line of a thousand and one sizes and types, you get the right rope for your equipment. Thoroughly lubricated, PREformed, engineered to give long, low-cost service. Send for Catalog G-15.

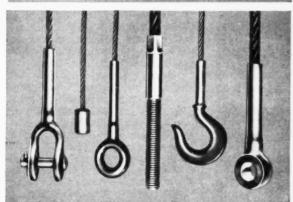


WIRE ROPE

Slings

for lifting and moving materials, equipment in production or maintenance

There are hundreds of types and sizes of Macwhyte Round-Braided, Flat-Braided, Single-Part, and Grommet Slings. All are custom made in length, capacity, and flexibility to meet your needs. Send for Catalog S-8.



WIRE ROPE

Assemblies

for machine parts, controls, and operating devices

Macwhyte Safe-Lock wire rope assemblies are made to order in length, strength, and flexibility desired. Terminals are permanently attached to one or both ends. There are many standard types. Send for Catalog 5201.

MAGWHYTE

These catalogs available on request







MACWHYTE COMPANY

2941 Fourteenth Avenue · Kenosha, Wisconsin

Mill depots: New York • Pittsburgh • Chicago St. Paul • Fort Worth • Portland Seattle • San Francisco • Los Angeles Distributors throughout U.S.A.



BATCH PLANT

. . . Continued from page 66

in a full condition. When the electro-pneumatic indicator in batching bin is reached, delivery is switched to No. 1 silo and, when that is full, to No. 2 silo.

In feeding these, delivery may be interrupted to top off the batching bin. When silo No. 2 has been filled the elevator automatically switches off till required again. When working to capacity the plant handles up to 300 tons of cement a day.

From the batching storage bins aggregates and cement are discharged into three weigh-batchers placed side-by-side. Each is fitted with a large weighing dial. The cuter two are used for aggregates, the inner one for cement.

Batches are discharged through a collecting cone and breeches chute to either of two holding hoppers. These, in turn, feed the two-compartment batch trucks which deliver to the pavers on the runway.

Fast Pace

Electro-pneumatic valves, operated by push buttons from a single panel, control all hopper doors in the batch plant. One man weighs out batches, discharges them into the holding hoppers and finally into the batch trucks.

A batch is weighed and discharged into about 25 sec. This gives a maximum potential batching speed of 130 batches an hr, allowing for minor delays. Such a pace probably would require two men, to work in shifts of an hour or two each.

Electric motors operate the plant, a total of about 90 hp being used when working to capacity.

Out on the field, two Koehring pavers put down 150 to 180 yd of concrete per hr. Following the Twin-batch pavers is a Blaw-Knox spreader and this is followed by a Stothert and Pitt finisher.

Two Belgian machines complete the process. The first is a S.G.M.E. finisher, fitted with a set of paddles at the front to remove all high spots prior to the vibrating beam passing over the concrete. The final machine is a S.G.M.E. joint cutter, fitted with a vibrating knife.

> COMING . . . in July Equipment-Maintenance Directory

MANSFIELD, OHIO

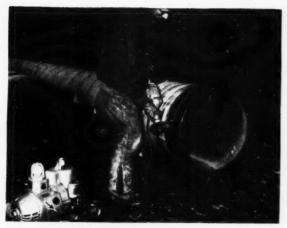


Fig. I ... PROPER GROUNDING between the shell of the electric buffer and the generator is through a ground wire, shown here attached to a grounding lug (arrow) on the generator.

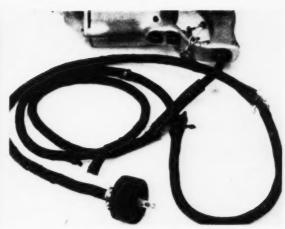


Fig. 2 . . . IT'S A SHOCK just to look at it, and no pun intended. Fortunately, most wiring is not as bad as this, but most dangers from electric tools stem from breaks in cable insulation.

How to Avoid Electric Tool Shock

Portable electric tools are designed to serve you well, but careless handling can bring on shock hazards. Some tips on high-cycle power applications and the importance of proper grounding circuits.

By DR. EDWIN L. LOTZ, Research Director, Irvington Varnish & Insulator Co.

PORTABLE ELECTRIC TOOLS such as saws, drills, grinders, pipe threaders and electric hammers are common equipment on construction jobs, both small and large. With the development of powerful high-frequency motors (commonly called high cycle), many pieces of equipment formerly powered by air are now being driven electri-

cally, including concrete vibrators, chain saws and impact wrenches.

The increasing use of portable electric tools makes it necessary that we look into safety practices and examine carefully the possibility of shock hazard. It is said that familiarity breeds contempt; some persons, using electric equipment every day, tend to forget the danger

inherent in all electricity and become careless. Others, perhaps because of having received a small shock, "having once been bitten are always shy", may over-emphasize the inherent danger. The common sense approach is to understand these tools.

In many respects, hazards in-(Continued on page 72)

Photos by Homelite

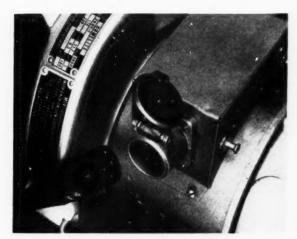
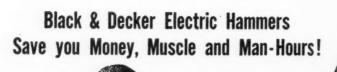


Fig. 3 . . . SOME TOOLS come equipped with watertight, molded rubber plugs and receptacles with grounding wire integral. Note also grinding lugs adjacent to generator receptacles.



Fig. 4 . . . CABLE LIFE is increased by a molded rubber cable strainrelief covering applied over the cable where it enters the tool. Excessive chafing at this connection is common.

Hammering Problem?





4 MODELS, rated by drilling capacity in concrete for holes up to 1/2", 3/4", 11/8", and 2".





Drilling, Demolition, Scaling, Seaming...

In any construction, maintenance or repair job involving a hammer action, Black & Decker Electric Hammers save you hours of laborious, costly hand labor! These husky tools deliver thousands of sharp, positive hammer blows per minute. They are light, compact, completely self-contained; require no transformer or extra equipment; operate from any electric outlet, A.C. or D.C., or from a portable generator.

See your nearby Black & Decker Distributor for a demonstration. Ask him about quality-built B&D Hammer Tools, too. Write for free catalog of more than 100 Electric Tools to: The Black & Decker Mfg. Co., 630 Pennsylvania Ave., Towson 4, Maryland.

A Hammer Tool for Every Job

STAR DRILL: For clean, round holes in concrete, brick, cement, etc.

BULL POINT: For demolition work on concrete, stone, brick, etc.

COLD CHISEL: For chiseling, scaling, surfacing concrete or metal.



ing in wood.

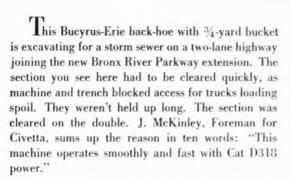
SCALING CHISEL: Removes rust, weld spatter, old paint.

BUSHING TOOL: For removing form marks or scuffing concrete surfaces.

SEAM TOOL: Cleans out old mortar between bricks or masonry for repainting. "This machine operates smoothly and fast with CAT D318 power"

J. McKINLEY, Foreman

Civetta Excavating, Inc., Bronx, N. Y.



Whether the pressure's on or you're doing a routine job, you're money to the good with Caterpillar Diesel Engines in your equipment. They're downright cheap to run, using No. 2 furnace oil without fouling. And they won't hold you up with costly down-time. If they ever need attention, you can get it fast and efficiently from your nearby Caterpillar Dealer.

Next time you're replacing or buying power, specify Cat Diesels. Leading manufacturers can furnish them in the machines they build. Engines are available to 500 HP — Electric Sets, to 315 KW. They're honestly rated — you can count on them to deliver all the power they promise. For complete facts about these sturdy, money-saving Diesels, see your Caterpillar Dealer.

CATERPILLAR, PEORIA, ILLINOIS

CATERPILLAR

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

volved in the use of electric tools on maintenance and construction jobs are substantially less than the hazards inherent in most home electric appliances - particularly those appliances used in a kitchen or in a bathroom. For example: There are millions of electric shavers in use today, all operating without any sort of safety ground connection. Should such a device become internally grounded, a man standing on a damp bathroom floor or leaning against a sink might be subjected to a severe shock. In addition, such equipment is usually

of rather fragile construction and easily damaged.

Electric tools used on construction and maintenance work have received special attention in design and construction and usually are equipped with heavily insulated cables. Also, most electric tools used in this type of work are equipped with a grounding connection, providing additional safety (Fig. 1, p. 69).

The danger of exposure to electric shock from electric tools and appliances is directly dependent on how well they are designed and



Fig. 5 . . . WATERTIGHT SWITCH for an electric vibrator even has the switch handle covered with rubber for work around wet

Steelcraft TRACTOR EQUIPMENT DEFIES THE WEATHER

NOW YOU CAN GET EFFICIENT PROTECTION FROM SUN, WIND, RAIN, SLEET, SNOW AND SEVERE COLD

On those blistering hot days in the summer the operator continues to work in the shade provided by a Folding Canopy Top ... then, when the weather is bad a Coverall may be quickly installed. It fits right over the Canopy like a poncho. Mounts on Ford and Ferguson Tractors or any popular tractor with fenders.



The Steelcraft Convertible Cab, made for Ford Tractors, provides new protection in any weather plus the safety of a solid all-steel roof. With all curtains and windshield removed the operator has complete ventilation and shade under the insulated steel top. Quick detachable curtains and windshield of extra heavy, duo-ply canvas allow for any desired combination to suit the weather-fully open, partial enclosure or a snug weather tight cab.

The comfort and protection afforded by Steelcraft equipment permits continued tractor operation in any weather.



See your distributor or write direct for literature and price.

CRUIT TRACTOR EQUIPMENT CO. 7340 PURITAN AVE. DETROIT 21, MICH. constructed and on whether they are maintained properly.

Most electric tools on the market today are well designed and well constructed; the greatest danger arises from the careless use of temporary wiring and exposed switches-or from power cables where insulation has been worn off through abrasion or continuous flexing (Fig. 2, p. 69).

Carelessness increases the hazards where men are working on the ground, in a basement or around any grounded structure such as a steel building, especially if there is considerable dampness present. These hazards suggest the importance of using proper grounding circuits and paying close attention to tool maintenance.

It's Not the Voltage

There is a great deal of misunderstanding concerning the relative dangers of the two voltages most commonly used on construction and maintenance jobs, 115 v and 230 v. While it is true that under controlled laboratory conditions the higher voltage is more dangerous than the lower, factors which are frequently given scant attention, such as grounding conditions and danger to exposed wires and switches, are actually much more important than the question of voltage.

There are many persons who will not think twice about using any appliance operating on 115 v, but tend to be wary of devices using higher voltages such as 230-440 v. But the danger from electrical equipment is much more directly dependent on design, construction and maintenance than on voltage. All other factors considered, voltage is relatively unimportant.

Of special interest in the construction field is the increasing use (Continued on page 74)



REGARDLESS of whether you use steel or wooden forms for concrete work — you can apply Globe Form Grease by spray, brush, or swab. This time-tested paste emulsion will reduce peeling and pitting to a minimum when forms are removed, and practically eliminate patching.

Due to its special adhering qualities, Globe Form Grease requires only a thin coating for utmost effectiveness. In fact, one gallon adequately covers approximately 200 square feet! And in addition — Globe Form is stainless, leaves a whiter smoother surface, and eliminates the need for painting.

Why not write for full particulars today? Once you use Globe Form Grease, you'll understand why engineers and contractors hail it as the "wonder grease" for concrete forms.



BORNE, SCRYMSER COMPANY

ELIZABETH, N. J. . CHARLOTTE, N. C.





New Cranes Designed for More "On the Job" Time!

Handle all types of precision steel erecting, concrete work and any crane, clam, magnet or dragline job with the new standard-duty 75A or heavy-duty 75B Gar Wood cranes!
... Collapsible high gantry simplifies raising of longest booms ... Pendant cables speed changing of boom lengths ... Optional power load lowering and fluid coupling give smoothest possible crane operation ... Hammer head boom point keeps cable away from boom — gives added boom strength — keeps cable costs low ... Crane sections pin and bolt connected for rigidity and strength ... Right angle drive, power actuated hoist clutches and conical hook rollers ... Easily converted to all attachments including the new, exclusive Gar Wood Foundation Borer!

FOR LIFTING POWER with MOBILITY

A Gar Wood 75BT truck crane will do the job. Lifts up to 40,000 lbs. Has all the heavy-duty features yet gets around fast. Ideal for long boom and steel erection work.





GAR WOOD INDUSTRIES, INC.

Findlay Division • Executive Offices • Wayne, Michigan

AVOID SHOCK

. . . Continued from p. 72

of portable generating sets for power supply. In general, there is far less danger of shock where tools are operated from a portable generator than where current is supplied from a conventional power line. The reason for this is simple. In the conventional power line, one leg of the circuit is always grounded. Consequently, if a workman comes in contact with an ungrounded wire and simultaneously with a grounded object, such as a water pipe, he may be subjected to a severe shock. In the case of the portable generator, there is an isolated electric system in which no part of the circuit is connected to ground. To receive a shock it would be necessary to contact two bare wires simultaneously.

Practically all portable electric tools are equipped with a grounding wire. This wire usually is insulated with a green covering. Proper practice, which gives a maximum of safety, requires that this grounding wire be used at all times. In the case of tools operated on single-phase circuits the best way to effect the ground is to equip the tool with a three-pole connector and plug into a similar receptacle to which a grounding circuit has been connected.

Ground It!

Where tools are operated from a conventional power line, the ground circuit must be connected to a water pipe or other suitable ground. Where tools are operated from a portable generator, the shell of the tool should be connected to the shell of the generator. To maintain the advantage of the isolated system, it is preferable not to ground physically the shell of the generator.

Some portable generators are equipped with a special grounding lug for convenience in making the

grounding connection.

Most portable electric tools in use today are powered by universal motors. In the last few years there has been a marked increase in the use of portable tools powered by high-frequency—high-cycle—motors. The current used most often is three-phase, 220 v, 180 cycles. Some manufacturers of this type equipment have gone to great lengths to provide the utmost safety. Accordingly, this type of equipment is worthy of special notice from a safety standpoint.

Special plugs and receptacles are provided so that when the plug is

connected to the portable generator the shell of the tool is grounded to the shell of the generator. Some of the better tools are equipped with completely watertight moulded rubber plugs and receptacles (Fig. 3, p. 69). A moulded rubber cable strain-relief device is provided to protect the cable from chafing and short circuits at the critical point where the cable enters the tool (Fig. 4, p. 69). One manufacturer of high-cycle vibrators supplies a completely watertight switch in which even the switch handle is covered with ubber (Fig.5, p. 72).

Mechanically, high-cycle equipment is less subject to short circuits and grounds because of the absence of brushes, brush rigging and commutator, such as used in universal motors.

Effect of Electric Shock

Two types of electric shock are of interest: Those involving low-voltage circuits and those involving high-voltage circuits. By far the most dangerous effect is that which is caused by very small currents flowing in the body so that part of it passes directly through the heart. These small currents derange the rhythm of the heart muscles so that they no longer contract in unison, but rather beat as separate and independent muscles completely out of coordination with each other.

This condition is known as "Ventricular Fibrillation". The result of such condition is that there is no pumping action of the heart, and circulation of the blood will cease. If this condition is allowed to continue for a period of 2 min, there is little chance of recovery and eventually death will result.

The second type electric shock is that which is normally caused by high voltage. In this case there is enough current flowing through the body to cause damage to the nerve centers and result in a nervous system block. There is one factor present in the high-voltage shock that tends to make it less dangerous than the low-voltage shock. On contact with high voltage there is such violent muscular reaction that the person usually is broken free from the electric circuit quickly, and the only damage which he may sustain is a severe burn at the point of contact.

Since the apparatus under discussion is all relatively low-voltage equipment, particular attention will be given to low-voltage shock. There are six major factors which influence electric shock effects of low voltage, as follows:



Gar Wood 5

A New 3/4 yd. Shovel with Many Exclusive Features!

Gar Wood has designed the new "75 series" shovels to combine many new and exclusive operating features with time-tested standards of advanced design and rugged construction . . . Both the standard-duty 75A and the heavy-duty 75B have power actuated mechanical drum clutches, right angle drive, independent chain crowd, power steering, independent travel, conical book rollers to eliminate rocking and an optional bydraulic coupling to absorb shock loads . . . Easy field conversion for crane, clam, dragline, magnet, pile driver or trench hoe work . . . Don't miss checking the profit potentials of the exclusive new Gar Wood Foundation Borer — the machine that bores and bells in one operation . . . See your dealer for details —

EASY CONVERSION IS A FEATURE



Your Gar Wood shovel can be quickly adapted for trench hoe work. Digs up to 17'10" depth, dumps at heights up to 19'3". Standard 40" dipper. 36", 31" and 26" widths optional.

GAR WOOD INDUSTRIES, INC.

Findlay Division • Executive Offices • Wayne, Michigan



Dependable Equipment for the Construction Industry



for over 100 Years

Manufacturers of Pile Driving Hammers and Pile Extractors
VULCAN IRON WORKS • 329 NORTH BELL AVENUE • CHICAGO 12, ILL.



407 COMMERCIAL CENTER, BEVERLY HILLS, CALIFORNIA

AVOID SHOCK . . . Continued

1. Current—There are three important types of current levels. First, the perception current, or the smallest value which an individual can detect when in contact with an electric circuit. Second, the "let go" current and third, the "freezing current".

As soon as a person is able to perceive an electric current, he will normally let go of the circuit and no damage will be done.

Since only a small percentage of the current flowing from a handto-foot circuit will pass through the heart, this value is below that required to produce ventricular fibrillation, and no danger is involved if the person lets go of the circuit.

The second, let go current is of greater importance. This is the value of current an individual can stand without harmful effect and still release himself from the circuit.

Freezing current is that value of current from which an individual cannot release himself from the circuit of his own volition. In this case there is great danger from electric shock. While current flows, there is a heating process at the surface of the skin which causes blistering, thereby lowering skin resistance and allowing the current to increase until enough is flowing through the person to cause injury. In this case the results are almost sure to be fatal.

- **2. AC or DC**—A direct current shock is much less dangerous than one from alternating current, on the order of about 1:5.
- 3. Frequency of Current-At frequencies between 0 and 25 cycles it has been found that the muscles of the heart are able to follow each cycle of the current. The most dangerous frequency range is from 40 to 80 cycles. Above 80 cycles, the current to cause fibrillation gradually increases with frequency so that at 180 cycles it requires more than twice as much current to affect the heart as it does at 60 cycles. This is of particular interest because of the increasing use of 180cycle current for electric tool operation.
- 4. Electrical Resistance of the Body
 —Since the amount of current flowing through the body is the most
 important factor governing the intensity of electric shock, it is of interest to look at the electrical re(Continued on page 78)

Before you buy:

Talk to operators!



Notice the short-throw "Speed-o-Matic" levers. They operate at the touch of a finger.

Operators world-wide prefer the fast, easy, trouble-free <u>Speed-o-Malic</u> operation



WENDELL BLAIR, Inkom, Idaho
"... fast, dependable, not a bit of lost time yet."

ROBERT GARNER. Lilbourn, Missouri— "... dependable, accurate, works steady, does more."



HOWARD FARL DEGREENIA, Westfield, Mass. — "It doesn't jerk like other rigs I've run."



S.

WITH "Speed-o-Matic" control, operators don't have to fight the rig... "end-of-the-shift" letdown is minimized. That's why they prefer "Speed-o-Matic"... why "Speed-o-Matic" means more profit for you.

What's more, these *power-driven* hydraulic controls allow faster passes . . . minimize wear and tear . . . require far less maintenance than manual, air, vacuum, booster or other control systems . . . and provide perfect "feel of the load."

To get all the facts on "Speed-o-Matic" controls and how they increase production, see your distributor or write:

LINK-BELT SPEEDER CORPORATION

Cedar Rapids, lows

19,198

LINK-BELT SPEEDER

CORPORATION

BUILDERS OF A COMPLETE LINE OF CRAWLER, TRUCK AND WHEEL-MOUNTED SHOVEL-CRANES

FACTORY-TRAINED
DISTRIBUTOR SALES
AND SERVICE SPECIALISTS
...EVERYWHERE

MM WHEELERS

- · Equipped for your job
- easy to handle
- high speed
- · large capacity
- high engine torque at low rpm
- durable single unit construction
- e low in cost
- nearby parts and service



Up and out, with power to spare! Heavyduty MM Wheelers offer the important advantages of proved conventional design.



WHEELERS

Built and equipped for your heavy jobs!

CONVENTIONAL DESIGN FOR FRONT OR REAR END

You get more work out of MM Wheelers with this conventional design that handles a bigger variety of attaching equipment. Front and rear mounted equipment makes both ends of your Wheeler pay. Practical drawbar applications further reduce machinery investments. MM design combines economy of first cost; fast, easy operation; ability to handle more tool types, and real operating safety.

Let your MM distributor demonstrate. See for yourself why MM owners call their Wheeler and equipment combination the "one man contractors."



MORE WORK from more equipment! MM Wheeler owners get all the advantages of design that make both ends pay — like this 3 yd.

Provisions for rear mounting give you real back-hoe performance. Again, Wheeler design



MINNEAPOLIS - MOLINE
MINNEAPOLIS 1, MINNESOTA

AVOID SHOCK

. . . Continued from page 76

sistance of the body. Electrical resistance of the body consists of two parts: resistance of the external skin and resistance of the internal part of the body. The resistance of the internal part of the body is very low and can be neglected in the over-all resistance of the skin. Dry skin will have a high resistance, but, as soon as the skin becomes moist, resistance drops to low values. If moist skin is brought into contact with a low-voltage ac circuit, it has been found that blisters will form on the skin in 6 to 7 sec, and these blisters will then cause a marked decrease in the resistance of the skin.

5. Voltage—It is almost universally accepted that high-voltage circuits are dangerous. However, since the value of current flowing through the person is the most important factor of the intensity of the shock, it is well to remember that low-voltage circuits under certain conditions can be extremely dangerous.

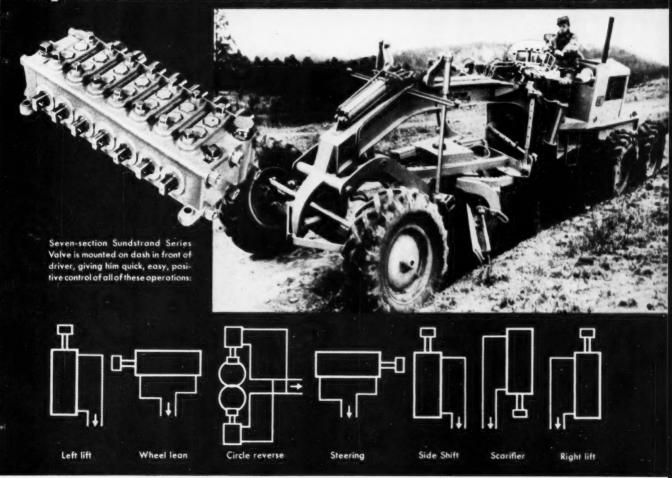
Under like conditions of resistance, the higher the voltage the higher the current which will flow through a given circuit. It also is true that the higher the voltage the more apt one is to be thrown clear of the circuit due to violent muscular reaction resulting from this contact with the electric circuit.

6. Pathway of Current—The most dangerous pathway of current is from the left hand to the left leg. In this case the maximum amount of current can flow through the heart.

The most effective method for recovery from an electric shock is that of artificial respiration. In the case of high-voltage shocks of short duration, the application of artificial respiration immediately after the shock in most cases will save the injured person.

But there is no evidence to show that artificial respiration will assist in stopping ventricular fibrillation of the heart if it is present in a low-voltage shock. The most effective method of artificial respiration the Hip-Lift, Back Pressure Method (see "Evaluation of Manual Methods of Resuscitation"-A. S. Gordon, M. Sadove, F. Reymon, A. C. Ivy-A.I.E.E. Technical Paper 51-378). The best means to stop ventricular fibrillation is an electrical counter-shock method, but to date no equipment has been built that can be used in the field.

Operators "go for" Sundstrand Hydraulic Controls on Rome Graders



Handle two or more operations simultaneously under full or varying load...save time and effort...no "kick-backs"

If you want verification of the advantages of having Sundstrand Hydraulic Controls on mobile equipment, just ask the operators. They know that all controls are within easy reach... the operator never has to leave his cab. Two or more operations may be handled simultaneously, saving time and effort. Controls respond immediately

... even after months of hard usage there is no evidence of wear.

There are no sore wrists from control "fighting" or "kick-backs." This is particularly noticeable when equipment is used for snow plowing. Even after long hours in the cab, the driver is less fatigued when fingertip hydraulic control absorbs the shock of hit-

ting occasional patches of ice.

Any piece of mobile equipment can be given new selling features . . . can be demonstrated more dramatically . . . when it is equipped with a Sundstrand series-type, multiple-section valve. Let us show you how great improvements can be made in your products—send for Bulletin 3104 today.



SUNDSTRAND Hydraulics

SUNDSTRAND MACHINE TOOL CO.
HYDRAULIC DIVISION, ROCKFORD, ILL.

AIRCRAFT AND INDUSTRIAL HYDRAULIC TRANSMISSIONS, PUMPS, MOTORS AND VALVES . OIL BURNER PUMPS . AIR SANDERS LATHES . MILLING, BROACHING AND SPECIAL MACHINES . BROACHING TOOLS . MAGNETIC CHUCKS



Old Steel Tops New Concrete Frame ...

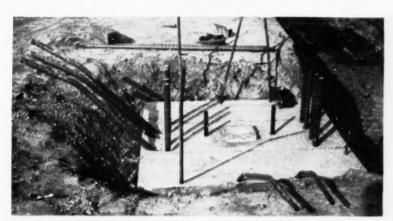


... on Site of Former Light Structure



TOP BEAM is eased into place by Bay City truck crane. Intermediate beams rest upon steel angle seats and are welded into place. Steel in top beams is welded to column reinforcing, and all joints finished

by grouting. Resulting continuous girder supports original steel frame and becomes runway for a 52-ton crane. Note handy work platforms hanging on sides.



COLUMN FOUNDATIONS extend 30 in. into ground. Precast columns rest on grout pads, are aligned by small center dowels and reinforcing steel joined by welding before filling in with concrete. Concrete members replace about 130 tons of structural steel.



WELDER SPLICES footing and column reinforcing bars by welding them to a steel angle. Later this section will be Gunited.

STRUCTURAL STEEL SHORT-AGES have been responsible for numerous alternate methods of construction in the last 30 months. The Bechtel Corporation, contractor for the rehabilitation of an idle plant for the Norris-Thermador

Corp. at Riverside, Calif., substituted precast concrete columns and beams for steel.

Norris-Thermador took over a war surplus plant for the manufacture of steel cartridge cases. The plant was well suited to the purpose, except that no building was high enough to permit installation of a 52-ton crane with 72-ft span—necessary for the plant's operation. And no structural steel was available at the time to erect

(Continued on page 84)

SPEED UP YOUR



TICH INC.

UNITED STATES OFFICES

Chicago • Michigan 2-1010 New York • LExington 2-7675 Boston • Dévonshire 9-7174 Philadelphia • LOcest 7-5533

Atlanta Emerson SEI6

Houston * Underwood 8514

Dallas * Riverside 6051

Birmingham * 7-5151

Les Angeles * Lomita 2889

San Francisco * ATwater 2-1442

CONSTRUCTION



ADJUSTABLE STEEL **SHORES**

ACROW Steel Shores are engineered and built from base to head for the fastest, safest, securest support on the job. Completely positive simple action leaves no chance for slippage. There is no cutting, wedging, or nailing to eat up time and money. And ACROW Shores have no jacks, levers, or supplementary tools to lose.

EXCLUSIVE ACROW SELF-CLEANING FEATURE makes possible rapid stripping operations. A unique patented extension of the collar nut extends over a segment of the threaded tube (see left). When collar handle is turned in stripping operation, encrusted concrete, dirt, and grit are removed from the thread-making ACROWS instantly ready for use on the next job.

GENERAL SPECIFICATIONS

		Shore Sizes	, Dimensi	ons, Weights,	and Capaciti	ies	
Size	Height		Weight	Failing Load		Recommended Safe Working Load	
No.	Fully Closed	Fully Extended	in lbs.	Fully Closed	Fully Extended	Fully Closed	Fully Extended
1	5 ft. 7 in.	9 ft. 10 in.	46	10.96 tons	8.97 tons	8210 lbs.	6720 lbs.
2	6 ft. 7 in.	10 ft. 10 in.	49	10.50 tons	7.90 tons	7840 lbs.	5975 lbs.
3	8 ft. 21/2 in.	12 ft. 51/2 in.	56	10.15 tons	7.55 tons	7490 lbs.	5600 lbs.
4	11 ft. 0 in.	15 ft. 0 in.	69	7.27 tons	2.89 tons	5225 lbs.	2050 lbs.

Standard 5" x 5" Beam Type 14" x 4" J Head 14" x 4"* *J Head available as an insert or standard head.

Write for Free Information on Acrow Products

ACROW, INC. Dept. CM-4

510 N. Dearborn St., Chicago 10, Illinois Gentlemen: Please send me the following

Free Bulletins (Please Check) Acrow Shores

Trench Jacks

☐ Telescopic Floor Joists

Company Address



LUBRIPLATE No. 630-AA IS PRACTICALLY A UNIVERSAL LUBRICANT

THE SPOKANE PORTLAND CEMENT CO.

With the introduction of LUBRIPLATE No. 630-AA, we were able to satisfy all our needs for solid type lubricants with only two LUBRIPLATE Products. LUBRIPLATE No. 630-AA might almost be considered a universal lubricant. Furthermore, it has effected marked savings in both lubricants and labor!"

For nearest Lubriplate distributor, see Classified Telephone Directory. Send for free 56-page "Lubriplate Data Book"... a valuable treatise on lubrication. Write Lubriplate Division, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.

AND TYPE OF YOUR MACHIN-ERY, LUBRIPLATE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.





FORMS ARE STRIPPED in adjacent building from 9-ton concrete girder section that becomes part of the crane runway which will be secured by anchor bolts showing on the upper face.

a building big enough to receive the crane.

The Bechtel firm met the situation by moving new precast reinforced concrete columns underneath an existing 650x75-ft building, raising it some 27 ft to a new height of 50 ft. The improvisation not only saved an estimated 130 tons of steel, but it also advanced the completion date.

First, the steel frame building was disassembled by units and piled to one side. Then concrete columns, beams, crane girders and other framing units were precast and lifted into place. Finally, the original steel was reassembled on top of the crane runway. John Becich was superintendent for Bechtel and Al Thuli project engineer.

Disheartening Picture of a Spread



THIS FELLOW could have been the fall guy (he didn't fall but got a safety lecture). He is inspecting a duct near the ceiling. His left foot is on a pipe hanger, his right on a rolling scaffold. This happened on the F. H. McGraw & Co. project for the AEC at Paducah, Ky. Pat Patterson is safety engineer; Red Browning the alert photograhper.



Whether or not you beat competition on a bid could depend on your bond rate. If you're ready with a *low*, *preferred* bond rate, you'll have an important advantage at your next letting.

To prepare for future bids, talk to your Indemnity Agent. Ask him to establish your credit line with Indemnity Insurance Company of North America, the largest independent, offering lowest bond rates* to contractors of skill, integrity and responsibility.

When you have established your qualified credit line, no one will be able to outbid you on this important item. You save money at Indemnity's low rates, too — and you are assured of getting bonds on future jobs without delay. See your Indemnity Agent now. It may make the difference between rejection and acceptance on your next bid.

Look to the future . . . establish your credit line now!
#Indemnity's low rates are not available in Lauisiana and Texas.



NADTU AMEDICA

One of the North America Companies, which are headed

PROTECT WHAT YOU HAVE O

Philadelphia 1, Pa.

Pioneers in Protection-Serving with 20,000 Agents in the Public Interest

One Man Makes Pipe

GOOD PLANT LAYOUT and a unique jib crane are combined in an unusual one-man concrete pipecasting operation at the C. E. Sheets Concrete Pipe Manufacturing Co., Clemmons, N. C.

Mainstay of the open-air plant is a one-ton, trolley-type Yale electric hoist mounted on a 25-ft jib crane. A special hood was fabricated to protect the hoist.

The hoist does all the lifting, from unloading incoming raw materials to loading finished products aboard delivery trucks. Its mounting on the jib crane permits coverage of a 270-deg arc across the casting yard with a 25-ft radius.



GENERAL VIEW of the casting yard shows how the jib crane sweeps across the area. It swings through a 270-deg arc to handle all lifting operations from pouring concrete to form-stripping and loading of finished pipe. Note tilting mixer in background. Simple installation permits one man to work efficiently and safely.



CONCRETE POURING into pipe forms is handled easily by one man. The hoist under the circular weather shield is a Yale Midget King, one-ton capacity and hung from a 4-wheel trolley.



SECTION OF PIPE has just been removed from one of the upright casting molds and is being moved to finish curing. Operator controls electric hoist with one hand, guides load with the other.



SYMONS FORMS PROVE THEIR VERSATILITY

We're proud of this picture, for it shows the adaptability of Symons Forms for all types of walls. Curved walls, pilasters and many pours—all were done with one set of Symons Forms.

SYMONS FORMS CUT LABOR COSTS

Labor costs averaged 5c per square foot for erection and stripping of 11,382 square feet of contact wall. Rental charge for the first time use was \$785.40 or 6.9 cents per square foot.

SYMONS SALES and ENGINEERING SERVICE

Symons' salesman made on-the-job recommendations of the forms needed and saw to it that the forms arrived when promised. He also supervised the erection to assure correct and fast set-up. There is no charge for this on the job service. Symons Engineering Department will furnish you form layouts and job cost sheets on your formwork—without charge or obligation. Send us the plans for your next job. You will be well pleased with the recommendations and the substantial savings in labor and material that can be realized.

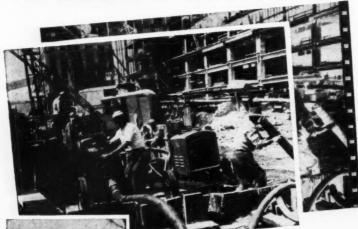
4233 Diversey Av	enue, Dept. D-3, Cl	hicago 39, III.
	nation on Symons F outs and job cost sl	forms. (Enclosed are heets.)
Name		
Address	-	



Symons CLAMP & MFG. COMPANY
4265 DIVERSEY AVENUE . CHICAGO 39, ILLINOIS

pump rental is a "RUGGED BUSINESS"

... and MARLOWS are built to stand the gaff!



Here is what Harvey Reeves, of the Foundation Equipment Co., Long Island City, N. Y. has to say . . .

"We operate the largest pump rental fleets in New York and Chicago . . . and both fleets are 100% Marlows. Marlow pumps maintain new pump performance longer and can be put back into new pump condition at less cost. They are the best contractors pumps built today."

Yes...pump rental is the toughest kind of service. If MARLOWS are best for rental they must be good. Day in and day out, MARLOW Self-Priming Centrifugal Pumps are handling the toughest kind of rental jobs.

In some cases, MARLOW PUMPS — (the preferred pumps for rental fleets) — are sent as far as 500 miles from home warehouses. The pump distributor cannot take any chances of a breakdown that will seriously halt job progress — he has to have the best pump on the job. That's why so many distributors rely on MARLOWS for the rental fleet.

MARLOW Self-Priming Centrifugal Pumps are built to last longer — (cheaper to overhaul) easy to check and service in the field. Practical design assures long engine wear; after long, hard use MARLOWS can be restored to full original efficiency by simply replacing the impeller and diffuser.

Keep this in mind when you think of pumps...the largest Pump distributors rebuild all kinds of pumps but they limit the rental fleets to MARLOWS. Men who have to be right when it comes to picking the pump for the job always rely on MARLOWS.

· Write today for facts, figures and specifications.

MARLOW PUMPS

RIDGEWOOD, NEW JERSEY Branch Plant: De Queen, Arkansas.

Other factories in France and England. Distributors and Dealers everywhere.



Crane picks up mast for . . .

Mountain-to-the-Sea Tower Raising

LATTICE - MAST TOWERS are carrying a 65-mi power transmission line that will conduct 345 kv across southwest British Columbia from mountain generating stations in the Fraser Valley to Vancouver.

The line has only recently gone into operation with the opening of British Columbia Electric's \$9,000,000, 82,000-hp Wahleach hydroelectric plant and initially is carrying only 230 kv, until a later date when additional power will be put on the line from added generating facilities.

Unusual design of this new line is highlighted by towers that consist essentially of two lattice-type masts joined by a cross-arm 85 ft above the ground. The cross-arm is 74 ft long, gives a spacing of 35 ft between conductors.

This construction provides a maximum of clearance with a minimum of strain and allows the use of light construction. Each tower above its foundation weighs only 15,000 lb. Two-mast construction is used on 2- to 5-deg and 5- to 10-deg angles, but in the case of 10- to 25-deg angle towers, a three-mast design is employed.

Towers are largely prefabricated to speed up the installation. Masts

are assembled in five sections. The top two sections were completely prefabricated at the plant of Western Bridge & Steel Fabricators. Each section was welded together at the plant and delivered to the site as a unit. The three lower sections were brought to the site in pieces-having been carefully prefitted at the plant-and then each section was bolted together in the field. Longest sections are about 19 ft long.

At the site, the two top sections were bolted together first and then the three lower sections were joined by bolting after assembly. Then the lower section was bolted to the top to make the complete mast.

A crawler - mounted Bucyrus -Erie 22-B crane with 75-ft boom was used to hoist masts into place, the feet then being secured to grillage stubs in the ground. Final steps were to bolt the cross-arms together between the towers and hang 21-unit insulator strings in position.

Towers are galvanized steel. There are 340 in the line, spaced about 1,000 ft apart. They support 560 tons of 1-in. conductor wire



MAST IS BOLTED to steel angles rising out of foundation. Towers are spaced 1,000 ft apart, contain two masts each, mostly.

and some 26,000 10-in. porcelain insulator disks, each with a load capacity of 25,000 lb.

Tower design was adapted from a Swedish model and construction carried out by BCE engineers under supervision of Tom Ingledow, BCE vice-president and chief engineer. The transmission line cost \$4,500,-

(More photos on next page)



is a 'RUGGED BUSINESS'







With men who have to be right when it comes to specifying the best pump, for the tough jobs, Marlow is always the answer. Pump Distributors and Contractors in every section of the country are using Marlows as standard job equipment.

• Write for descriptive literature today. See for yourself what Marlows mean to you in low cost pump operation •

. . . and MARLOWS are designed to deliver dependable performance under the toughest conditions!

The Biggest Pump Rental Fleet in Baltimore is 100% Marlow.

D. C. Harrison, President, General Supply and Equipment Co., Baltimore, Md. says:

> "Our company maintains the biggest pump rental fleet in this area, and every one is a Marlow, When we rent out a Marlow we're sure it will stay on the job. Marlow design enables us to keep the entire fleet in new pump condition at minimum cost."

Here is another typical example that proves Marlow pumps are the best for long, hard use under the most rugged operating conditions. It is a clear indication of the consistent performance of Marlow Self-Priming Centrifugal Pumps . . . their dependability on a wide range of tough assignments.

Check these features and see why we ontinue to say . . . "Marlows are the continue to say . . . "Marlows are the best by design, performance, efficiency and trouble-free operation — the best contractors' pumps ever built."

- · Prime faster on higher suction lifts
- Pump more water per gallon of fuel
- Operate at easier engine speeds
- Non-clogging construction handles dirtier water for longer periods
- Inexpensive replaceable impeller and diffuser restores pump to original efficiency
- Models in all AGC ratings: 4 M through 125M, 1½"-10" —plus a large selection of other models for special use

RIDGEWOOD, NEW JERSEY Branch Plant: De Queen, Arkansas ctories in France and England. Distributors and Dealers everywhere

Coated optics give you this—not this—



Model 3000, \$185.00*, complete with tripod.

with a White Universal Level-Transit

HERE'S what coated optics do for you, You can put in a full day without eyestrain or headache. There's less chance for a mis-reading. You get a clear, sharp sight—not a fuzzy image. What's more, you get your reading in far less time. Check this diagram. See for yourself how coated optics pass through up to 40% more light, provide a clearer image contrast.

PASSAGE OF LIGHT THROUGH UNCOATED LENSES



PASSAGE OF LIGHT THROUGH COATED LENSES

And there's more!

White Universal Level-Transits also offer you internal focusing, guarded vertical arc and ball bearing race which insures smooth operation, even in sub-zero temperatures. Check one out on your next trip. You'll soon be convinced a White can make your work faster, easier, more accurate . . . Write for Bulletin 1053. DAVID WHITE CO., 343 W. Court Street, Milwaukee 12, Wisconsin.

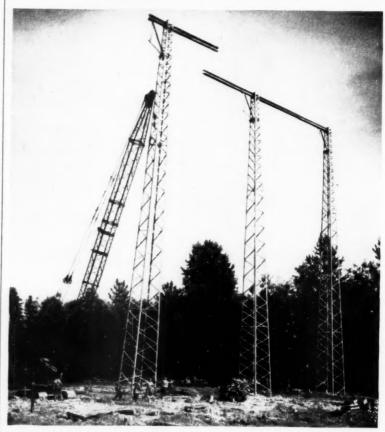


Expert REPAIR SERVICE on all makes, all types of instruments

*Prices subject to change without notice.



CENTER MAST of a three-masted tower gets a lift up by a 22-B Bucyrus-Erie crawler with 75-ft boom. Masts are completely assembled on the ground, including crossarm sections.



THIRD MAST of 10- to 25-deg angle tower is swung into position over its foundation legs. Cross-arms, 85 ft above the ground, are 74 ft long to give a spacing of 35 ft between conductors.

A MESSAGE TO CONSTRUCTION ENGINEERS



SUMP TYPE

An important phase of the construction industry is the need for dependable and economical maintenance of equipment.

We all know from experience that poor equipment saves no one money. There is no before hand calculating the cost of delays in completing a job and in lost opportunities. Equipment that is not dependable does not fit into the modern construction picture.

For these reasons, construction engineers are advised to concentrate much effort upon preventive maintenance.

In equipment where filtration is a problem, remember Marvel Synclinal Filters for protecting liquids in all hydraulic and low pressure systems.



(Cutaway)

21/2 TIMES MORE ACTIVE FILTERING AREA!

MARVEL Synclinal FILTERS

MARVEL FILTERS are available in both sump and line type models. Individual capacities from 5 to 100 g.p.m. and in mesh sizes from 30 to 200. Both types may be easily disassembled, cleaned and reassembled by any workman. Line models operate in any position and may be serviced without disturbing pipe connections. You can depend on MARVEL FILTERS for efficient preventive maintenance.

WATER

Both our sump and line types are NOW designed for use in all water filtering applications. No changes have been made in the basic Synclinal design.

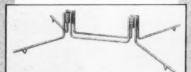
Write for Complete Information—Specify Oil or Water

Meets J.I.C. Standards MARVEL Engineering Company



629A-D3 WEST JACKSON BOULEVARD, CHICAGO 6, ILL.

3 NEW SUPERIOR ACCESSORIES for more efficient handling of...



"PICK-UP" INSERT with two 1" coil bolts, will safely lift a load of 11,000 lbs. when embedded in 3,000 lb. concrete slabs.



"ANCHOR" INSERT in both the "Tilt-Up" slab and the floor slab provides anchorage for slab brace bolts.



SLAB BRACE for temporary anchorage is quickly installed and adjusted. Has exclusive pivoting action.



Are you bidding on a "Tilt-Up Slab" job? Are you starting a "Tilt-Up Slab" Job? Then you will be interested in Superior's three new accessories, designed for faster and more efficient handling of precast panels.

The Superior "Pick-Up" Insert provides dependable anchorage for bolts to which slings are attached when the panel is raised. "Anchor" Inserts in both the "Tilt-Up" slab and the floor slab secure the temporary bolts to which the braces are attached. With Superior's adjustable and pivoting Brace you have an efficient as well as inexpensive answer to both ordinary and unusual bracing problems . . . you merely assemble with 2 x 4's of lengths to fit individual jobs.

Leading contractors on the Pacific Coast and in the Midwest already are users of these new specially designed inserts and braces.

For details write today for Superior's Bulletin "T U-1".

SUPERIOR CONCRETE ACCESSORIES, INC.

4110 Wrightwood Avenue, Chicago 39, Illinois

New York Office 1775 Broadway, New York 19, N. Y. Pacific Coast Plant 2100 Williams St., San Leandro, Calif.



LONG REACH and high dumping clearance are features of new Jaeger I-yd loader. In addition to torque-converter drive, gear

selection permits five speeds forward and five reverse, with 50% higher speeds backing up.

Jaeger Rolls Into Loader Field With Torque-Converter 1-Yd Unit

Another Equipment Development Report By HAROLD W. RICHARDSON, Editor

REALIZING IT MEANT stepping into a highly competitive market with a line of equipment it had never built before, the Jaeger Machine Co. of Columbus, Ohio, proceeded cautiously in developing its 1-yd torque-converter drive frontend loader. Jaeger's president, Ray McLean, and his veteran assistant, Joe Yearling, decided there was room in the market for not just another loader, but for a husky, heavy-duty, fast machine that could meet rugged service demands of contractors and heavy industries.

Then, these fellows, along with chief engineer John Apel and the new Loader Division sales manager, Roy Mosel, talked to scores of distributors who know the loader business, seeking advice and suggestions.

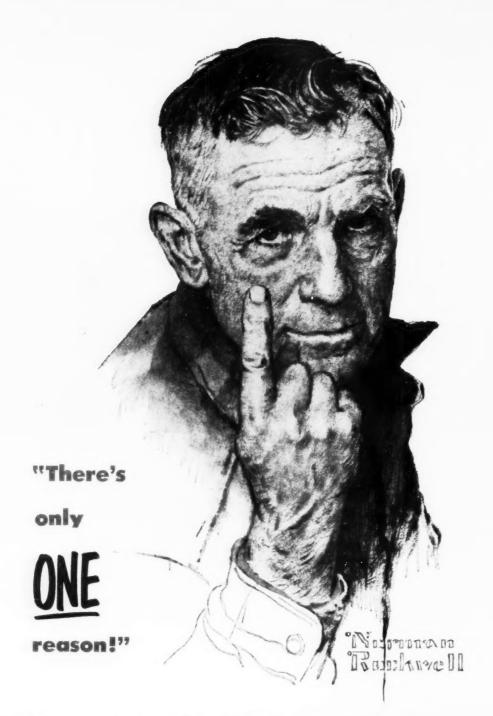
All of this preliminary investigation, plus meticulous attention to design and thorough testing of prototype machines, has resulted in the new Jaeger Model LP-100 front-end loader, mounted on rubber, hydraulic operated and driven through a torque converter.

Besides the torque converter, outstanding characteristics include: rugged, all-welded frame and boom assembly, built to take it; full 1-yd struck-measure bucket (1.1 yd heaped); five speeds forward up to 18.7 mph; five speeds reverse up to 28.2 mph; high dumping clearance of 8 ft 2 in, under

bucket tip; automatic leveling of bucket with 13-in, crowd; rearwheel power steering; balanced load over front drive wheels.

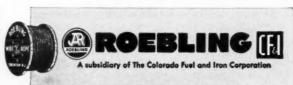
In the interest of dependability, parts supply and service, Apel and his engineering staff decided to use only standard, proved components. Thus, the loader is built up out of Timken-Detroit axles, Continental engines (gas or diesel), Fuller torque-converters and transmissions, Ross steering apparatus, Hydreco hydraulic pumps and Goodyear tires. Jaeger makes the transmission cases, cuts and installs the reverse gears. Specifications are given in the table on page 102.

We saw the first production mod-(Continued on page 96)



T'S JUST THAT SIMPLE. There's only one reason in the world why 2 out of 3 wire rope users in the excavating and construction field prefer Roebling wire rope . . . it costs a lot less on the job than any other.

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your machines.



JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. * BOSTON, 51 BLEEPER BT. * CHICAGO, 5525 W. RODSEVELT RD. * CINCINNATI, 3253 FREDDNIA AVE. * CLEVELANO, 13225 LAKEWOOD HEIGHTS BLVD. * DENVER, 4801 JACKSON ST. * DETROIT, 915 FISHER BLDG. * HOUSTON, 6216 NAVIGATION BLVD. * LOB ANGELES, 5340 E. HARBOR ST. * NEW YORK, 19 RECTOR ST. * DDESSA, TEXAS, 1920 E. 2ND ST. * PHILADELPHIA, 230 VINE BT. * SAN FRANCISCO, 1740 17TH ST. * SEATTLE, 900 15T AVE. S. * TULBA, 321 N. CHEYENNE ST. * EXPORT BALES DEFICE, TRENTON 2, N. J.















Our Whiteman Power Buggies are tireless workers. All day long they speed along the runways, climb steep grades, squeeze through tight spots and turn on a dime. They're doing a tremendous job, saving valuable time and cutting costs -for the simple reason they carry 13 cu. ft. of concrete at a time, which is equal to 4 hand buggies. For bridge slabs and floors, they are tops."

Larry O'Neill, Supt. c/o Poirier & McLane Corp.



hiteman

POWER BUGGY . FLOATING & FINISHING MACHINES . SCREEDING MACHINES

WHITEMAN MFG. CO., DEPT. C

3249 Casitas Ave., Los Angeles 39, Calif.

Please send prices, literature and name of distributor for —Power Buggy — Screeding Machines —Floating Finishing

Firm

WET JOBS

#16 of a Series

BAYTOWN TUNNEL

Baytown, Texas

Gen'l Contr.: Farnsworth & Chambers Excavation: Associated Contractors



COMPLEX DRAINAGE PROBLEM SOLVED 40 FT BELOW CHANNEL

ENGINEERS on this job faced a twofold problem. Existing tube (see photo)—running across ship channel and through dike—lay on a bed of uniform pea gravel, so that hydrostatic pressure acted through the gravel into working area.

- Hence it was necessary for the Griffin wellpoint system to tap this gravel "pipe-line" and shut off flow from channel—while simultaneously lowering 40 ft of ground water. This two-fold task was successfully mastered, through a year of continuous pumping.
- The soil was laminated: silty sand, tough clay and shells. These obstacles were overcome with a drill-rig and sanding casing.
- Photo shows tunnel approach at South portal. Operation was duplicated at North portal.



881 East 141st Street, New York 54, N. Y. Hammond, Ind. Houston, Tex. Jacksonville, Fla.

In Canada: Construction Equipment Co., Ltd.
Taranto Montreal Halifax



BIG WHEELS and torque-converter drive make for easy going over rough ground and steady, but powerful, crowding into material pile. Machine is balanced over front drive wheels by engine in rear, heavy cast grille counterweight, and heavy rear-wheel hub-castings.



4

PARALLELOGRAM ARRANGEMENT of boom arms and linkage keep bucket level from carrying to maximum dumping position. Boom arms and linkages are cut out of 11/4-in. plate. Boom arm pipe struts serve as oil reservoirs and equalizers for bucket control rams. With boom in top position as shown here, bucket lip will clear 8 ft 2 in. when dumping.

els coming off the assembly line at the Jaeger plant in Columbus, and were impressed with their rugged design and construction, and their sleek, trim appearance. Then we took one out into the yard and put it through its paces. Ease of operation and quick response to controls are astounding.

The operator sits right up front where he has a full view of the bucket at all times, as well as 360-deg visibility all around. While he sits inside the boom arms and struts, there is no chance of getting an arm or elbow caught in the boom mechanism.

Controls are simple and within easy reach. At the left is a mechanical parking brake lever. Clutch, hydraulic brake and accelerator pedals are automotive type. Steering, with hydraulic booster, is by a large truck-type wheel. If the hydraulic system should fail, steering instantly reverts to mechanical operation.

Just to the left of the steering wheel is a long forward-reverse lever, and direction of travel can be changed without shifting of selector gears. At the right is the gear shift lever, with neutral (Continued on page 99) Cutting fleet costs on OPERATION:

START-STOP!



Now, over 90,000 miles between overhauls with . . .



• Buri's Sunlit Bakery, Eau Claire, Wisconsin, kept its fleet of trucks hustling to deliver fresh bakery goods on schedule over ever busier routes. More continuous operation and tougher start-stop conditions caused maintenance troubles. Individual units averaged only 40,000 miles between overhauls.

Upon the advice of a Standard Oil automotive lubrication specialist, the fleet was switched to Standard's Original heavyduty motor oil. Deposit troubles previously experienced with a conventional lubricant were eliminated. Mileage between overhauls for individual units approached 90,000.

Recently, the officials of Buri's Sunlit Bakery adopted Standard's new and better Standlube HD-M Motor Oil for use in their fleet engines. When one of the units was overhauled after 97,000 miles operation on Standlube HD-M, engine internal parts were found to be clean as new. Officials report that through use of Standard's products and service they have reduced maintenance costs 30%.

Make the experience of this fleet your basis for investigating the benefits offered by Standlube HD-M Motor Oil. You can obtain the services of a Standard Oil Automotive Engineer by phoning your local Standard (Indiana) office. Or, write: Standard Oil Co., 910 S. Michigan Ave., Chicago 80, Ill.

STANDARD OIL COMPANY (Indiana)





HOLLOW DRILL ROD

CRUCIBLE STEEL COMPANY OF AMERICA, GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.

JAEGER LOADER . . . Continued from page 96



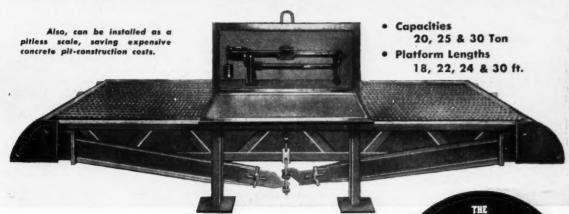
FRONT-END VIEW reveals trim lines of new loader. From this position on ground, 76-in. wide bucket has automatic crowd of 13 in. as it is raised to carrying position, without moving the machine. Front and rear grilles are heavy castings to add weight and to act as counterweights. Hydraulic-booster steering will turn rig in 14-ft radius.

LOADER IS DESIGNED to work close to walls and curbs. Hydraulic controls can be cut out by pulling a button under driver's seat to allow bucket to float over uneven surface for clean-up work.

(Continued on next page)







ACCURATE and PORTABLE

This scale can be transported, assembled, from one job to another by removing six bolts which hold the side levers in place. The complete scale can then be lifted as a unit and loaded onto a truck as a unit. It can be readied for use in minutes.

WIDE STEEL BASES

This scale requires no concrete footing. The steel bases at both ends support the scale perfectly. The easy-to-read weighboam is chrome-plated. Other vital parts are electro-plated against corrosion. Write for additional information and prices

THURMAN PORTABLE TRUCK SCALE

Est. 1918

Other Thurman weighing equipment: Pit Scales—Pitless scales—Wheelbarrow scales—Warehouse scales, to fit your requirements

THURMAN MACHINE CO.

SCALE

156 North Fifth Street Columbus, Ohio





RUGGED BASIC DESIGN of machine is shown by this assembly-line view. Chassis is built up around pair of 8-in. 18-lb channels, rigidly cross-braced. Combined operator's compartment and boom seat is heavy welded-plate box that adds to stiffness of frame. Tandem hydraulic pumps attach to coupling at end of drive shaft in foreground.



HYDRAULIC
BOOSTER STEER-ING is through rear
wheels. If hydraulic
system should fail,
steering reverts to
positive mechanical
control. Heavy cast
wheel hubs act as
additional counterweights at rear end

of machine.

and five-speed positions. Near by, also for right-hand operation, are the boom hoist and bucket dump levers.

Both boom hoist and bucket positions are actuated by double-acting hydraulic rams, giving positive control at all times. Thus the boom and bucket can be operated and held in any position independently. The bucket can be shagged or slammed to discharge sticky material. Parallelogram design of boom arms and linkage automatically keeps the bucket level from carrying to full height.

Another unusual feature is a float

valve button under the driver's seat that will release the hydraulic boom and bucket controls. Then the bucket, in bulldozer position, floats free on the ground, a big advantage in cleaning up or scraping over uneven surfaces.

Operating the Jaeger Loader for the first time, we were much impressed with two features. First, was the almost unbelievable smoothness of travel and crowd afforded by the torque converted drive. You can ease into a stiff bank or into a heavy lift with the gentleness of a baby's breath—then give her the gun, and the engine roars along without lugging while the loading mechanism picks up speed as the rig takes hold of the load. 'Tis wonderful!

Second, you just can't help noting that the entire load, with empty or full bucket, is balanced over the big front drive wheels acting as a fulcrum. Loaded or empty, traveling forward or in reverse, you get the comforting feeling of balance. This balance is achieved by camouflaged counterweights that don't detract from the appearance or impair the 12-in. ground clearance.

Both front and rear grilles are heavy castings. Then you find two 500-lb hub-castings in each of the rear steering wheels. Another 1,000 lb of stability is added by loading the big drive wheels with a calcium chloride solution. All this, coupled with placing the engine at rear of frame to help balance the bucket load, gives you fine stability.

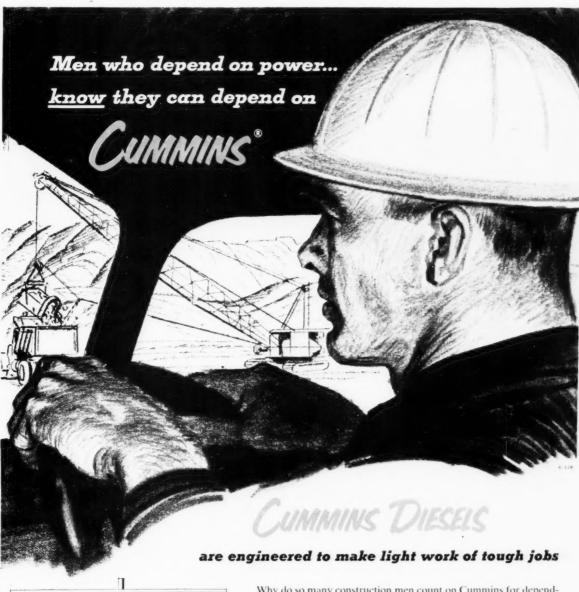
Staunch Frame

But let's get back to the shops and see how these rigs are built. They start out with a couple of 8-in. 18-lb channels for the main frame, well braced with cross-struts and further stiffened by the heavy plate enclosure forming the drivers' seat, control housing and the boom seats. The engine, either a Continental 55-hp gas or 57-hp diesel, is placed at the rear of frame for maximum balance.

Then comes the Fuller singlestage two-phase torque-converter and next the transmission case that houses the gear shifts, reverse gears and the hydraulic braking mechanism. At rear of engine, directly connected to the flywheel through a flexible coupling, is a tandem hydraulic pump. One impeller, with a capacity of 32 gpm, furnishes hydraulic power for boom and bucket controls; the other 5 gpm unit takes care of the hydraulic steering. Both front and rear axles are Timken - Detroit roller-bearing equipped.

Boom arms and linkages, intricate curved sections, are cut out of 1½-in. plate with a pantograph multiple-head torch. All boom and linkage connections, except at the bucket, are fitted with needle bearings. The boom arms are braced with pipe cross-struts. These not only serve as stiffeners, but also as hydraulic oil reservoirs and equalizers.

Single hydraulic supply lines en-(Continued on page 102)





Enjoy thrilling 16mm Technicolor Sound Movie

"DIESEL RACE CAR"

PRINTS AVAILABLE FOR GROUP SHOWINGS! WRITE TODAY.

<u>Leaders</u> in rugged, lightweight high-speed diesel power!

Why do so many construction men count on Cummins for dependable power in toughest going?

You'll find part of the answer in the special kind of versatility that belongs to Cummins Diesels alone. It's versatility that goes beyond the handling of all kinds of jobs. It's actually an ability to meet every power requirement that any situation demands . . . to save on fuel, do more work per dollar, whether the call is for continuous power or stop-and-go operation over a wide and flexible speed range.

Yes, you can count on a (60-600 h.p.) Cummins Diesel for dynamic versatility in every job—performance that stems from an exclusive fuel system and precision engineering. See your Cummins dealer for all the facts. He's a diesel specialist . . . ready to help solve your power problems.



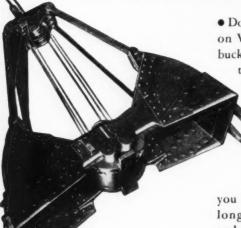
CUMMINS ENGINE COMPANY, INC.

Columbus, Indiana

Export: Cummins Diesel Export Corporation Columbus, Indiana, U.S.A. Cable: cumdiex

WELLMAN Williams Type

FAST BUCKET OPENING SPEEDS OPERATIONS



• Double-hinge construction on Wellman's multiple-rope bucket permits faster opening than a single hinge. This

speeds up operations, also gives a bigger spread in the open bucket for the same headroom.

Wellman's weldeddesign buckets offer you better performance and longer service. In all types and sizes you'll do better with

CLAMSHELL . DRAGLINE . CUSTOM-BUILT SUCKETS . STONE AND WOOD GRABS

THE WELLMAN ENGINEERING COMPANY

7000 Central Avenue Cleveland 4, Ohio



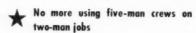


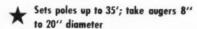
New "325" Attachment ... Derrick and Digger Unit

For 3/4 and 1-TON TRUCKS

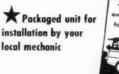
Why send a five man truck and crew on pole replacement or service jobs that can now be handled by two men and a highly portable 34 or one ton service truck? The "325" at-tachment makes it possible for two men to set up the derrick, attach the digger, dig the hole and set the pole ready for tamping in less than ten minutes! This set-up, with or without radio communication, speeds up line work and cuts costs way down

Write for fully illustrated Bulletin 325.





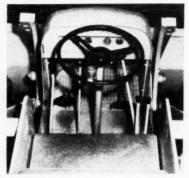
Packaged unit for installation by your





JAEGER LOADER

. Continued from p. 100



CONTROLS are simple, within easy reach. To left of steering wheel are parking brake and forward-reverse lever. Hydraulic brake and accelerator pedals are automotive type. Two small levers at right control boom lift and bucket tilt, both positive operations in both directions. Operator cannot get arms or elbows caught in linkages outside cab compartment.

ter each of the two pipe reservoirs, but two lines of equal length run from reservoir to the hydraulic rams controlling bucket tilt, thus assuring exact equal pressure on the two

Plans for future developments include a short-coupled 12-cu ft loader, without torque-converter, to work inside of box cars, and a bigger, more rugged 11/2-yd ma-

All in all, Jaeger's entrance into the loader field has added a sleek, powerful machine to the ever-increasing array of this popular type of material handlers.

LP-100 JAEGER LOADER SPECIFICATIONS

OVER-ALL MEASUREMENTS

Height, bucket at max el	12	ft	101/4	in.
Height			68	in.
Height over operator's head			86	in.
Width, front tires			75	in.
Width, rear tires			67	in.
Length, bucket on ground	15	ft	8	in.
Length, bucket at carry	16	ft	9	in.
Wheelbase			78	in.
Ground clearance			12	in.

		76	in.
	1	cu	yd
1	.1	cu	yd
	5,	000	Ib
8	ft	2	in.
10	ft	4	în.
		24	în.
	3	41/2	in.
	5	0 0	deg
		9	sec
		9	sec
	8	1.1 5, 8 ft 10 ft	1 cu 1.1 cu 5,000 8 ft 2 10 ft 4 24 34½ 50 c

TEL-E-LECT PRODUCTS.

10,077 MINNETONKA BLVD. . MINNEAPOLIS 16, MINN.

ENGINE

	Gas	Diesel
Make	Continental	Continental
	F6-226	HD-260
Horsepower	55	57
R.P.M.	2000	2000
Cylinders	6	4

TORQUE CONVERTER

Fuller	Singe-stage, 2-phase
Oil Capacity	171/2 pt SAE No. 10

CLUTCH

11-in. spring loaded, heavy-duty, automotive type clutch only used for shifting.

TRAVEL SPEEDS

ward Reverse
2.5 3.75
4.4 6.6
7.25 11.5
3.2 20.0
8.7 28.2

TIRE

7.50×20	- 10	ply
ves to	allow	for
		ves to allow

TURN RADIUS

Outside	rear	tire			14	ft
Bucket	corner	at	carry	position	14	ft

WEIGHT

Front	***************************************	6,475	lb
Rear	***************************************	4,650	lb
Total	************************************	11,125	16
10	1 1 1 1000 11 / 11 11		

(Includes 1,000 lb of calcium chloride in front tires)

STANDARD EQUIPMENT

Torque Converter, Power Booster Steering, Electric Starter, Horn, Float Valve (Bucket), Muffler, Draw Bar.

ACCESSORIES

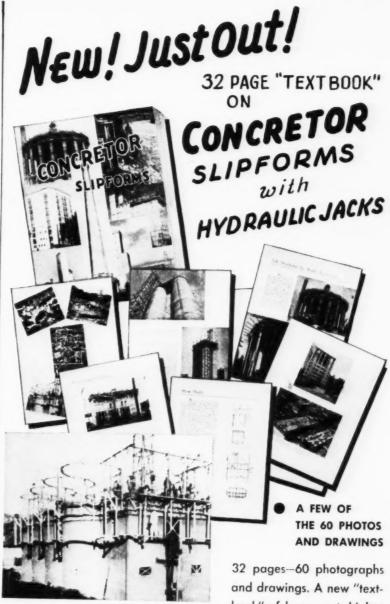
Back Filler, Bucket Teeth, Snow Bucket, Cab, Lights, Crane Hook.

Spray Guns for Abrasive Blasting

Paint spray guns no longer suitable for painting are being modified by the Navy for use in abrasive blasting. The conversion was worked out by Fred C. Malz at the San Francisco Naval Shipyard.

Compressed air is brought into the gun body through the fitting at the base of the handle, as before. The paint-spraying head and siphon-supply nipples are removed and an airjet nipple installed into the gun head. To this is attached a pipe tee with a connection to siphon in the abrasive material, and beyond that a Carboloy nozzle to withstand the rapid wear when blasting abrasives.

This lightweight blasting gun has reduced fatigue, uses less air, provides closer control, and has made it possible to blast into and around corners that formerly were termed "hard-to-reach."



book" of lower cost, higher speed modern concrete construction methods with CONCRETOR Slipforms and Hydraulic Jacks.

This COUPON is for your conveniece—SEND TODAY—

GET YOUR COPY NOW!

B. M. HEEDE, INC., 80 BROAD ST., N. Y. 4, N. Y.

Send me a copy of new "textbook" describing and illustrating the many different applications of CONCRETOR Slipforms with Hydraulic Jacks.

NAME

COMPANY

ADDRESS

There's more to tractors than meets the eye . . .

The real "pay-off" value of any tractor to its owner is how it measures up to the standards set by today's modern production methods.

To meet these needs, Allis-Chalmers started from scratch and built a line of tractors with a future. Thousands now have been tested and proved on the toughest proving ground of them all, actual jobs, and they have more than measured up to expectations. Owners have found that these tractors set new standards of performance . . . that they give greater output with less down time . . . plus more profit, whether pulling, pushing, digging or dozing. Operators have discovered new ease and comfort in operation, too; and mechanics say these are the easiest-to-service tractors that they have ever worked on.

Yes, the "family circle" of users of Allis-Chalmers tractors is growing constantly. Many users who bought their first Allis-Chalmers tractor only a few years ago now have fleets of them, and many others who operate only one or two tractors have become Allis-Chalmers boosters.

This acceptance is the springboard behind a big plant expansion at Springfield, Illinois, which will enable Allis-Chalmers to meet your future needs. See your nearby Allis-Chalmers dealer now for the inside facts on pacesetting tractors that measure up to modern



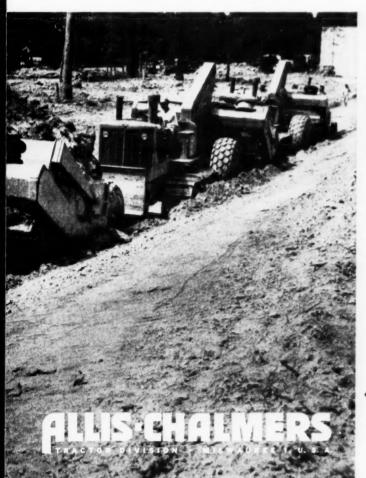
production methods.



From haul road to highway to heavy construction . . . wherever big production is essential to the job, this big HD-15 has more than proved its worth. With 109 drawbar hp. and 27,850 lb. weight, it works quickly, efficiently as a dozer, tractor-shovel, puller or pusher.

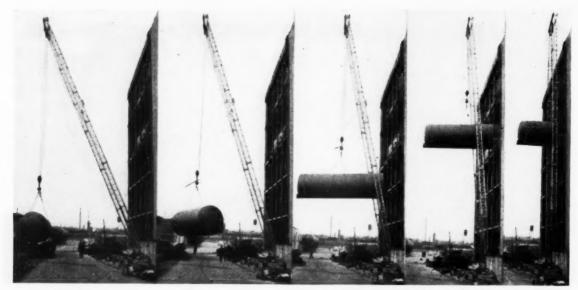


This 72 drawbar hp., 18,800-lb. HD-9 is making friends in every field because its power and weight make it ideal for dozens of today's jobs. And, operators can gain up to 25 percent more production on short dozing jobs because they can go from any forward to any reverse speed with just one shift.



The 40 drawbar hp., 11,250-lb. HD-5 is a versatile jack-of-all-trades for fleet owners as well as one-man operations. . with hydraulically controlled Tracto-Shovel, it's equally useful loading bulk materials, dozing, digging basements, dozens of other jobs.

Here's real tractor teamwork . . . four HD-20's in a "train" — three pulling scrapers, one pushing — all working together for big production. With torque converter drive, they synchronize speeds at contact . . . automatically load at the fastest speed that job conditions permit, with less strain on operators and equipment. With 175 engine hp. and 41,000 lb. weight, the HD-20 is today's new yardstick of crawler tractor performance.



Up, over and into brewery goes 191/2-ton, 12x42-ft unit of glass and steel as . . .

Gallows Frame Sets Big, Fragile Tanks



1 SLINGS ARE ADJUSTED at start of lift pictured progressively at top of page. This tank is going 70 ft up to fourth floor.



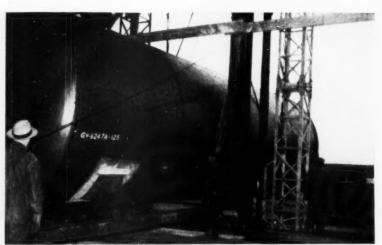
2 FRONT IS CRADLED on 4-wheel underslung dolly on pair of runner beams as tank is threaded into deep building bay.

GETTING A BEER may involve just lifting a bottle cap, bending an elbow, and swallowing. On the other hand, it might also involve a lot of intricate construction. That's the case in Newark, N. J., where New York City's George A. Fuller Co. is expanding Anheuser-Busch's Budweiser brewery.

There were 52 large and heavy glass-lined steel tanks to be threaded, usually two deep, into a five-story, five-bay building whose

top floor was 90 ft above grade. Forty of the tanks were 42 ft long, 12 ft in dia, and weighed $19\frac{1}{2}$ tons. These lager (storage) tanks will hold more than 31,000 gal of beer.

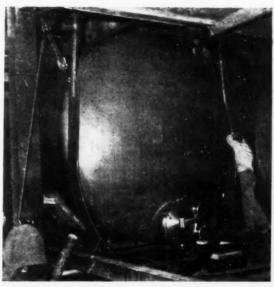
Tanks were set by a gallows frame whose legs were 120 ft high and 15 ft apart. The base of the frame was blocked to the building. Timber blocks were fastened to the legs at fifth-floor level so that, even when snugged up tight against



3 TANK IS WALKED IN by belly band—a U-shaped wire-rope sling whose ends are fastened high on gallows-frame legs. Main load line tilts up rear end of tank, band is pushed out around it, load is slacked off, and tank swings down and is supported by band.



4 REAR IS LANDED on individual dollies that fit under tank's permanent jacking brackets. When in final position, this end will rest on two screw jacks so tank can be adjusted exactly.



5 SUSPENDER IS AFFIXED after tank has been rolled on runner beams to its place in building bay. This heavy steel strap and bolt arrangement is permanent support for front end of tank.



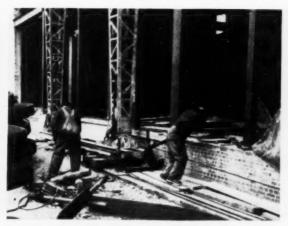
6 FRONT IS JACKED UP so dolly can be removed for use in setting next tank. Fitted timber blocking prevents concentrated jacking loads from damaging tank's delicate glass lining.



7 REAR DOLLY IS REMOVED after hydraulic jacks have raised that end. Sitting beside this jack is permanent screw jack that will be placed beneath bracket when runner beam is removed.



RUNNERS ARE SKIDDED to next bay, sliding on lengths of 2-in. pipe. These 8-in. H-beams will be set and blocked on slight inward slope to make it easy to roll tank into building.



9 GALLOWS FRAME IS MOVED to next bey. Here, while topping lift is shifted above, base is jacked up so blocking can be replaced with rollers. Unit's hoist engine will pull it over.

Tuffy

7 Ways Better for DRAGLINES!



"Gives Better Service Than Any Other Rope"

Says Maintenance Superintendent of Arkansas Construction Company
(Name on Request)

(1) Wires of finest steel in a (2) construction specially designed for universal dragline service give Tuffy (3) extra flexibility . . . make it (4) extra easy to handle. You'll find Tuffy Draglines (5) spool better and (6) ride better on grooves. And you get (7) maximum abrasive resistance since Tuffy materials are toughened to withstand more abrasive wear! Time and again, Tuffy Draglines stand up under more days of service and move far more yardage than the best previous average obtained by many operators . . . operating in dry dirt, wet dirt, sand, gravel, rock and minerals! To order, just ask for the length, the size and the name—TUFFY DRAGLINE!



GALLOWS FRAME . . . Continued

the face of the structure, the top of the legs was still 6 in. beyond the base. This prevented the latter from even kicking out under load.

The gallows frame was powered by a gasoline-driven Lidgerwood three-drum hoist. One drum handled a %-in. single runner line or whip, the second spooled the ¾-in. cable from the 11-part main load line, and the third took care of the ¾-in. cable from the 8-part topping lift.

The topping lift was rigged so as to put equal pull at both sides of the gallows. After running up one leg and through a block on one side, the line was reeved through one four- and one three-sheave block, then dead-ended at the other side of the gallows. The four-sheave block was hooked to the rear frame of the building, but the other was bridled to each end of the gallows. This simple arrangement prevented unequal strain and consequent racking of the frame.

Tank setting proceeded a floor at a time, with the gallows moved horizontally to the next bay after placement of one pair of tanks. This was deemed faster and easier than placing all the tanks in one bay on all floors from one setup. It meant more shifting of the gallows frame, of course, but that was far less work than dropping runner beams and temporary planking from floor to floor after every second tank was set.

How the tanks were set on the fourth floor beneath a concrete ceiling slab is shown in the accompanying step-by-step photos. On lower floors, chain hoists could be hooked to the building's steel frame to replace the temporary hydraulic jacking. This speeded tank installation, and pushed the rate up from three to four units per 8-hr day.

Those in Charge

General contractor for the Budweiser brewery expansion is George A Fuller Co., for whom Thomas A. Lamb is project manager and James Taylor, Jr., is superintendent. George Bruere was superintendent for Milwaukee's Price Erecting Co., who were advisers to Edward B. McMahon Inc., Newark rigging subcontractors who set the tanks. Ernie Lowe was McMahon's superintendent. Tanks were made by A. O. Smith Corp., Milwaukee, for whom F. Richardson was field supervisor.



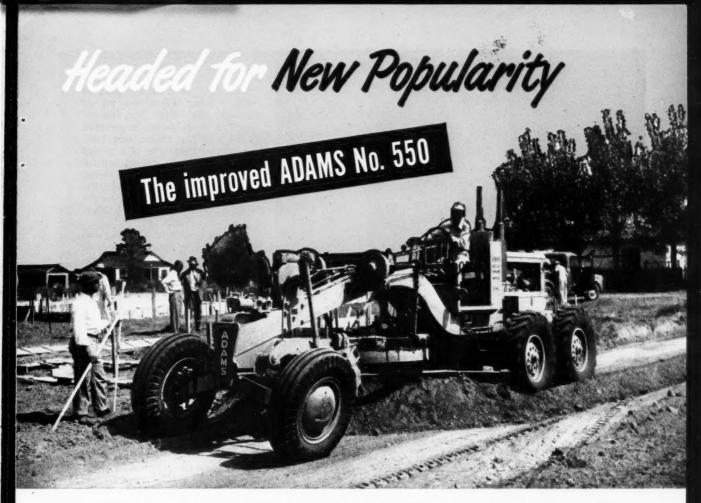


"No Other Rope Even Comes Close to Comparing with TuffyScraper Rope"

Says an Iowa Contractor
(Name on Request)

More and more operators of scrapers are switching to Tuffy Scraper Rope... and there are good reasons why! Tuffy is so designed to resist drum crushing caused by rope cross-overs—flexible enough to withstand sharp bending and hug sheave grooves. Tuffy's good slack line behavior helps it hold up better under the shock of load impact on slack line—a condition multiplied in scraper service. Remember, Tuffy is easy to order; just specify length, diameter and "Tuffy!"





A Heavy-Duty 100 H.P. Grader with New Constant-Mesh Transmission

You have only to check the new and improved features that characterize the Adams No. 550 Motor Grader to know that here is one of the most efficient and versatile machines you can possibly own:

• Powerful Diesel Engine: Lots of lugging ability—easy to start—economical, dependable . . . Rubber mounted for vibration-free operation.

NEW Constant-Mesh Transmission: Quick, easy gear shifts . . . Helical gears—all on roller bearings—insure smooth, long-life performance . . . Finest transmission ever put into a motor grader.

• 8 Forward Speeds: More working speeds and a higher travel speed (25 mph) than other graders... Save time—increase work production.

NEW 4 Reverse Speeds: Up to 13.2 mph... Speed work on many jobs—backing between forms, bucking snow, etc.

NEW "Creeper" Gears: Optional in transmission at nominal cost... Provide 3 extra-low speeds—.22 to 1.76 mph... Valuable where slow-speed operation is desirable.

- Positive, Easy-Working Controls: Dependable, accurate adjustments—easy, natural steering.
- Big, Comfortable Cab: Roomy convenience for maximum operator efficiency—2-way adjustable seat.

NEW Double-Action Braking System: Operates on wheels and transmission—quick, safe stops with less pedal effort.

NEW Foot Accelerator: Drive grader like truck—great in traffic. Use it or hand throttle when working.

Discover how the new No. 550 will step up production and cut costs for you. See your local Adams dealer.

J. D. ADAMS MANUFACTURING CO. . INDIANAPOLIS, INDIANA

Make your next motor grader an





THE HYDRO-QUEBEC looks big, even on the 3,300-ft Beauharnois Canal. She measures 280x58 ft; displaces 2,500 long tons; has an 85-ft, 375-ton ladder carrying a 26-ton cutter head with renewable teeth to give the dredge a maximum cutting depth of 50 ft.

Specially Designed Dredge...



BIG VOLUME DISCHARGE indicates capacity of the pump. Dredge digs and disposes of canal's heavy and sticky marine clay without prior preparation, such as blasting. The clay contains glacial boulders, many of them being passed along easily to the spoil pile.

... Handles Tough Boulder Clay

IN THE BEAUHARNOIS CANAL on the St. Lawrence River above Montreal, the world's largest hydraulic pipeline dredge is hard at work moving 40-million yd of tough boulder clay. The *Hydro-Quebec*'s 36-in. pump is powered by an 8,000-hp motor, and total connected horsepower is a potent 12,180. She's even more powerful than the *Western Chief* (30-in., 6,000-hp pump) that made the closure at Ft. Randall Dam on the Missouri in South Dakota (CM&E, November 1951, p 55).

The big dredge is widening and deepening the canal to provide more water for Quebec Hydro-Electric Commission's expansion of the Beauharnois powerhouse. Work now under way will make this the largest single-site hydro plant in the world, with more 2-million hp output. And the 15-mi canal 3,300 ft wide will divert practically the entire flow of the St. Lawrence to it.

No Blasting

To dig the boulder clay—a heavy, sticky type of marine clay interlaced with glacial boulders—and dig it without prior preparation by blasting, Baltimore's Ellicott Machine Corp. designed the Hydro-Quebec. Displacing 2,500 long tons, the dredge is 58x280 ft overall. Side sponsons can be removed from the hull to narrow it for passage through canal locks. An 85ft ladder carrying a spiral-blade cutter head with renewable teeth gives the dredge a maximum digging depth of 50 ft.

Power for the *Hydro-Quebec* comes at 13,800 v (3 phase, 60 cycles) from the Beauharnois plant via shore line and submarine cable. Dredge pump motor operates directly off this line, but three 600-kva transformers step current down to 2,400 v to feed motorgenerator sets for cutter head and hauling and hoisting machinery motors. A fourth transformer delivers current at 600 v to an auxiliary type power distribution switchboard.

A 125-kw diesel-driven generator is also aboard. If power from shore is disconnected, this unit provides emergency current for auxiliaries, lighting, and raising of ladder and spuds at reduced speed. Speed control of the 36-in. Ellicott single-suction dredging pump is accomplished at constant power with a torque converter. Control of cutter speed is by motors.

(Continued on page 112)



"Our Dodge trucks just go and go!"

Why new DODGE "Job-Rated" TRUCKS are a better buy for Construction Men

HIGH-POWERED FOR HEAVY HAULS!

Dodge gives you the might and muscle to move those big loads in a hurry! Seven hefty power plants, three brand-new—from 100 h.p. to 171 h.p. It's real economical power, too. High compression ratios, 4-ring pistons, chrome-plated top rings and a host of other features combine to help keep your gas and oil expense at rock-bottom levels. And extra-powerful dual primary brakes, in 1- through 4-ton models, assure safer stops with less pedal pressure!

BIG PAYLOADS FOR BIGGER PROFITS!

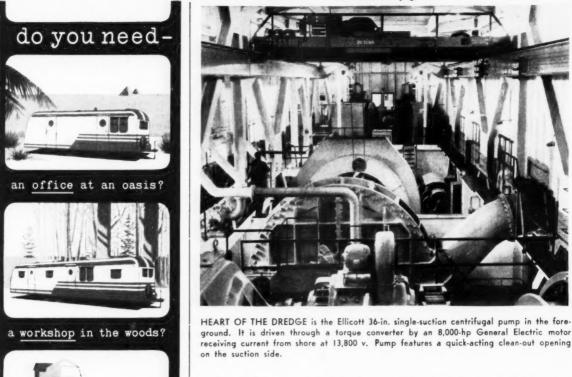
With a Dodge "Job-Rated" truck, you can haul man-sized loads on a small-sized budget! New, bigger load capacities on many models enable you to carry more money-making payload every time out. Moreover, those rugged Dodge frames, sturdy axles and extra-strong springs are built to withstand toughest use for years without breakdown. See your Dodge dealer for the full story on Dodge extra value. He's making mighty good deals right now.

... says CHARLES BENDA, Owner, Chuck's Excavation Service, Chicago, III.

"Contract hauling and excavation work can be rough work sometimes. You never know from one day to another what your next job will be like. That's why I need trucks that can handle any kind of job that may come up. And Dodge is my choice down the line!

"That Dodge power is as steady as a mule. It has the ability to pull full loads out of deep basement excavations, and the dependability to keep coming back for more. My Dodge trucks are plenty economical, too. I haven't found any other make that can come close to Dodge for good gasoline mileage!"

DODGE "Job-Rated" TRUCKS

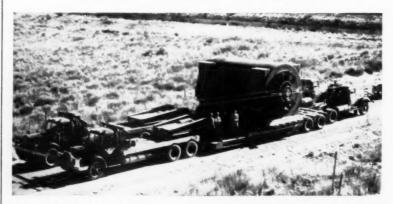


One of the dredge's unique features is a pneumatically operated clean-out cover in the suction line at the pump. The quick-opening, bottom-drop unit lets the pump be cleared with a minimum of delay.

In all, the Hydro-Quebec is an efficient and powerful dredge. So powerful, in fact, that numerous boulders up to the designed limitations of the pump can be found in her spoil pile-some weighing as much as 1/2 ton.

In addition to designing the dredge, Ellicott Machine Corp. supplied her main pump, cutter head, ladder, and hauling and hoisting machinery. General Electric furnished motors, motor-generator sets and electric controls; Westinghouse Air Brake Co. the pneumatic controls for hauling and hoisting. Hull and spuds were made by Marine Industries Ltd., Sorel, Quebec which also assembled the Hydro-Quebec.

Lowboys Travel Abreast Under Big Load



IT'S STEADY COORDINATION for two Mack winch trucks, pulling 100-ton Rogers and Fruehauf trailers carrying a 184-ton turbine stator II mi from Amherst to Earth, Tex. Jeff Graham of Lubbock did hauling for Missouri Valley Contractors, Leavenworth, Kan., and Winston Brothers Co., Minneapolis, with Frank Harrison and H. C. Henderson in charge.

a store in the sticks? a lab at a lake? \$10.40 per square foot is the low purchase price of a Prairie Schooner "basic trailer." Floor space that takes your wares or services from market to market, winter or summer ... that can even combine sleeping quarters with office, shop or exhibit space! Get the facts about this trailer that's completely finished . . . ready for you to partition and equip to suit your requirements. Write for free copy of "Basic Trailer" report 40, PRAIRIE SCHOONER, INC. Elkhart, Indiana . Elkton, Maryland

Bridge repairs SPEEDED by Bantam® method!

One of the toughest assignments ever tackled by CONCRETE CONTRACTORS, INC., Milwaukee, Wis., was the recent "remodeling" of busy Wisconsin Ave. viaduct, carrying heavy east-west traffic on State Routes 16 and 18. Contract called for removing old railing and sidewalk on north side of the ½-mile long, 70'-high structure. In addition, a new walk and railing had to be installed to widen the roadway, and a new 6" facing of concrete had to be applied over the entire exterior sidewall. How Pres. W. John Hufschmidt mechanized ALL these difficult operations with ONE low-cost Schield Bantam truck crane is explained and illustrated here.

5 different operations mechanized with 1 versatile Bantam crane!

Pours concrete 70' down! Final pouring into forms along side of huge viaduct (right) required painstaking work, since the crane operator couldn't see below bridge level. However, an ingenious "signalling" system, combined with Bantam's precision power-lowering, enabled operator to spot the $\frac{1}{2}$ cu. yd. concrete bucket on chute openings with amazing accuracy.



President W. John Hufschmidt says:

"We had to have a versatile, highly maneuverable crane for this job because of the need for handling all operations at street level, without interrupting heavy arterial traffic. Our mobile Bantam solved the problem nicely and performed beyond our highest expectations."

Get the complete story from your nearest Schield Bantam distributor, or write today for literature, prices and free demonstration on any one of your jobs.



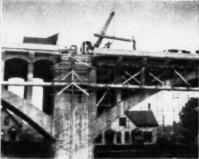
Removes old railing! Heavy concrete sections and street light pedestals weighing up to 9500 lbs. were readily loaded into trucks with Bantam's 25' heavy-duty boom, using only one outrigger.



Breaks up old sidewalk!
Equipped with 1000-lb. skull cracker ball,
Brantam moved along entire 1/2-mile bridge
span, breaking up old sidewalk for removal by clamshell.



Removes concrete, fill! Fastchange 36-yd. clam bucket enabled Bantam to load broken sidewalk pieces and earth fill into trucks at rapid clip . . . kept 2 trucks busy hauling.





SCHIELD BANTAM CO.

221 Park St. . Waverly, Iowa

How to Select the Correct Sling for the Job

By WALTER C. RICHARDS, Chief Engineer, A. Leschen & Sons Rope Co.

EVER WONDER whether the types of slings you have in use are exactly what you should be using? If you do, it is quite understandable. Even a sling user of long experience may become confused occasionally with the wide selection of slings available by types, constructions, sizes and makes.

This article will point out gen-

eral rules of procedure for the selection and application of wire-rope slings—a guide to proper sling selection which will mean saving of time and elimination of confusion when slings are specified for a particular job.

A basic question is, of course, "Should a chain sling or a wire-rope sling be used?" Both have

their merits. Chain slings have historical precedence in many applications, but the use of wire-rope slings has been steadily increasing within recent years. Therefore, if the use of one type or the other seems to be based on precedent or habit alone, it is worth checking the application very thoroughly to see whether that habit should be changed.

If it has been decided that a wire-rope sling will do a better job, six factors must be considered before the type, size and length of the sling can be specified. These factors are:

- 1. Object of the load—its size, weight, shape, etc.
- 2. Working area for example, amount of headroom.
- 3. Size and description of crane hook.
- **4.** Angle of inclination—vertical lift, or otherwise.
- 5. Location and description of lifting lugs, if any.
- 6. Plane of attachment of fittings.

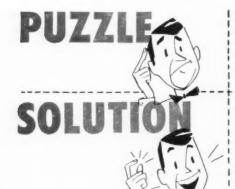
With this information at hand, your sling supplier can be of greater help in recommending the type of sling that will give you the best possible service.

Slings are of three different types: (1) standard single-part wire-rope slings, (2) endless slings, which may either be continuous strand (grommet) or spliced endless, (3) multiple-part laced or braided slings.

Standard Single-Part Wire-Rope Slings

Standard wire-rope slings are made up of one or more lengths of standard wire rope. The sling may have a single length of wire rope with necessary end attachments, or be in the form of a bridle, with two, three or four legs. It is well suited for general lifting operations (large or small), where the sling is attached to fixed rings or lugs, and also where sharp bends in the sling are not major considerations. A standard wire-rope sling is generally available in sizes from

(Continued on page 118)



BASE PAVERS





PAVER FINISHERS

In today's construction game, where specifications are usually tough and dollars need to be stretched, Apsco equipment can be your best friend. If the job calls for road widening, trench rolling, base paving or bituminous paving, you'll do well to get the facts on Apsco.



AND STILL MAKE A DECENT PROFIT



ROAD WIDENERS • BASE PAVERS • TRENCH ROLLERS BITUMINOUS PAVER FINISHERS

ROAD WIDENERS





TRENCH ROLLERS

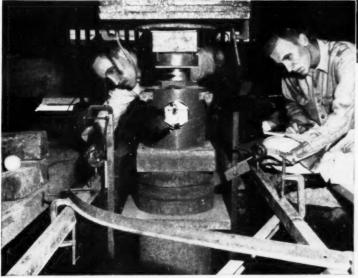


Available through reputable equipment distributors across the land. Write us for the name of the one nearest you.

ALL PURPOSE SPREADER COMPANY . ELYRIA, OHIO

Predesign pile loading tests





Above: Four large water-filled steel tanks provided a dead load exceeding 120 tons in recent friction pile tests for the Iowa State Highway Commission.

Left: During Monotube testing, dial readings were taken at specified time intervals as load increments were applied. Scales shown are only two of several reference points on instrumentation framework, which were checked by wye level each time readings were taken.

PREPARATORY to designing an overpass near Council Bluffs, the Iowa State Highway Commission conducted a series of pile loading tests. Careful engineering preparation and unusually thorough instrumentation provided highly accurate test results.

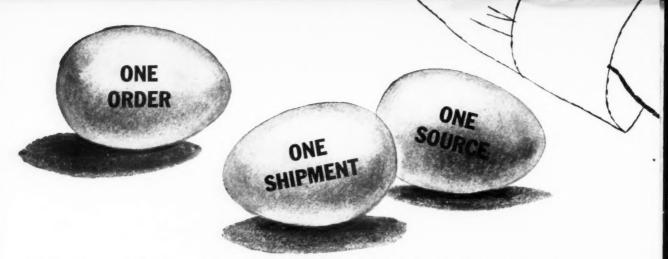
A 40-foot Monotube in fine brown sand was loaded to 112 tons with a settlement of only 0.048 inches. Specified load increments were applied by

means of a hydraulic jack bearing against the 120ton dead-weight of 4 water-filled steel tanks.

If you have foundation problems coming up, check with Union Metal for helpful engineering service... for accurate Monotube pile test data... and for the latest information on modern, easy-to-drive piles that can save you plenty of time and money. Write to The Union Metal Manufacturing Company, Canton 5, Ohio.

Monotube Foundation Piles

UNION METAL



It's smart business to put ALL YOUR EGGS IN ONE BASKET...

when it's the

BLAW-KNOX

"Complete Package"

of concrete paving equipment

IT'S the most efficient operating policy as well as smart business to put all your eggs in one basket... when those "eggs" represent every piece of concrete paving equipment you need, *PLUS* all the advantages of a one-source "package" paving system.

With the Blaw-Knox "Complete Package", every operation is 100% mechanized in a set-up that is engineered for big production at a schedule-trimming pace. You have all the benefits of depending on one, and only one, source... one reliable manufacturer who gladly accepts the responsibility for each piece of equipment functioning efficiently and economically in a balanced operation... and one dependable distributor source which assures you of the prompt, skilled service that keeps you operating at full efficiency at all times. Remember, just one Blaw-Knox trained man can service all your "package" equipment!

When you have the Blaw-Knox "Complete Package", backed by "package" economy advantages, you know you can clip schedule time and still make good profit. Think what that means when you're bidding against stiff competition!

Whether your next job is large or small, it will pay you to check what "Complete Package" efficiency can do for you. Your nearest Blaw-Knox distributor can help you make up a "Complete Package" to fit your job requirements, and explain every detail.

BLAW-KNOX

BLAW-KNOX
EQUIPMENT DIVISION
BLAW-KNOX COMPANY
BLAW-KNOX Bunk Building
2086 Farmers Bank Building
Pittsburgh 22, Pa.



ROBERTAL 100% TON MECHANIZATION

ONE DISTRIBUTOR ORGANIZATION

PORTABLE BULK CEMENT PLANTS MULTIFOOTE

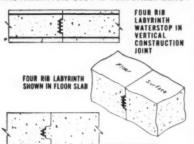
PAVING SPREADER VIBRATORS

PRECISION SUBGRADERS



 Concrete shrinkage can't cause leakage between pours when you're protected by ribbed and grooved polyvini plastic Labyrinth Waterstops in the joints. Watertight? Absolutely. Economical? You bet... No special forms, no metal fins to bend or tear...no maintenance cost, AND ...

INSTALLATION COST IS VIRTUALLY ZERO!



ATER SEALS, inc. 9 SOUTH CLINTON STREET

Further Information and Sample-Clip the Coupon!

					1	at	ent	a	pp	lied	1 6	OF					
_	_	_	_	_	_	_	_	_	_	_	_	_	-	_	_	_	_

		inton St., Chicago 6, Illinois
Send	full	information and sample.

CHICAGO 6, ILLINOIS

Name			
Company			
Address			
City	7	State	

SELECT YOUR SLING . . . Continued from page 114



EXAMPLES of standard single-part wire-rope slings. This type of sling is well suited for general lifting operations where the sling is attached to fixed rings or lugs.

38- to 2-in. dia. Smaller diameters generally are 6x19 construction, and diameters 11/4 in. and over are 6x37 construction.

Single-part slings are available with various combinations of end fittings, such as thimbles, loops, hooks, open and closed sockets, swaged-sleeve loops, inlaid spliced loops and others.

It is usually easy to determine the size of a standard wire-rope sling best suited to the application simply by checking maximum loads to be lifted, and then referring to the rated capacity charts provided by wire-rope sling manufacturers. Standard wire-rope slings cost less than multiple-part slings, but, although you can use this lowercost standard rope sling, do not let cost misguide you into overlooking more efficient, more economical slings of other types. When standard rope slings are made of flexible, preformed construction, they are easier to handle.

Typical applications include: handling machinery, castings and objects having fixed rings or lugs. for attachments.

Continuous Strand or Grommet Slings

A wire-rope sling made of a continuous rope strand is called a grommet sling. This single length of strand is laid in place around itself to form a round 7-strand endless sling. It is generally available in sizes from 1/4- to 21/4-in. diawith strands of 19 wires in sizes up to 11/8 in. strands of 37 wires in sizes from 11/4 to 21/4 in.

Grommet slings are generally more efficient than spliced-endless single slings in the short lengths in which these slings are ordinarily used. They are made with only 1



THIS TYPE OF SLING made of a continuous rope strand is called a grommet sling. Such slings are easy to use and handle.

tuck instead of 6, as required in the running splice. Frequently grommet slings can be used without the need of forming loops or attaching fittings. They are ideal for forming sling "hitches" of various types.

Grommet slings may be used for lifting lighter loads, where the sling is not subject to excessive friction and to severe bending, or heavy cylindrical loads. It is economical to have grommet slings available because they are easy to use and easy to handle, and

(Continued on page 120)

Here the Hydrocrane excavates for a retaining wall. Boom reaches out for extra passes—without moving truck an inch! Quick-set outriggers provide outstanding machine stability... even permit the ½-yd. clamshell bucket to be handled with a flat boom, fully extended. Every crane function fully hydraulic. Travels up to 50 mph on open road. Simple hand levers—no foot brakes.



HYDROCRANE'S built-in reach grabs the "EXTRA-DOLLAR" jobs

Bucyrus-Erie Hydrocrane with hydraulically telescoping boom gives you 8 ft. more boom — right at your fingertips. This special extendretract action means extra dollars in savings on regular jobs . . . extra dollars in profits on special jobs ordinary outfits can't handle. Look:

- On erection work boom reaches between girders . . . hoists concrete buckets, planking, etc., to upper stories . . . saves hundreds of man-hours.
- **2.** On road work telescoping boom reaches under branches, over obstructions while handling pipe, culvert, or levelling shoulders . . . moves material into tunnels and low underpasses . . . handles dozens of close-quarter jobs.
- **3.** On yard work reaches into boxcars . . . over fences . . . between stockpiles to move material, load trucks, etc., in a hurry.

QUICK CONVERTIBILITY TO *HYDROHOE*

By actual stop watch test, crane has been converted to dragshovel front end by one man in less than one hour! And on trenching, telescoping action of Hydrohoe boom cuts lost time moving up as much as 40 percent.

Get the full story on the all-hydraulic Hydrocrane with its many attachments.

SEND COUPON TODAY



Here the Hydrohoe starts a trench cut. Available with either 12- or 18-inch dipper—equipped with hydraulic ejector that kicks dirt out.

BUCYRUS-ERIE COMPANY
SOUTH MILWAUKEE, WISCONSIN

BUCYRU	US-ERIE COMPANY South Milwaukee, Wisconsin
Gentlemen:	Please send me Hydrocrane literature.
	Please send me Hydrohoe literature.
Name	
Company	
Address	
City	State

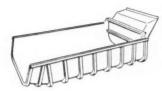
For tougher, longer-lasting DUMP BODIES



Perfectly matched for extra yardage with new work-rated St.Paul hoists



MODEL 310: Scoop end mucker body for use with St.Paul Hi-Dumper hoists. Extra pay-load capacity, dumping angles up to 75°.



MODEL 311: Heavy-duty rocktype body with scoop end for fast, easy dumping of big payloads on mine or quarry operations. There's a "difference" in dump bodies! And St.Paul proves it, with this completely new heavy-duty line, newly engineered for extra payload hours. Note the sturdy 3-way reinforced box channel tail gate on the new St.Paul contractor's body, (shown above). It's built stronger, tougher, to withstand roughest usage, without warping or binding. Improved design of offset upper hinges and recessed lower hinges also means added hours of smooth, trouble-free operation on your job.

And look at those massive boxed steel side braces, with double-rolled top flanges and full-length rub-rails! They're plenty rugged! In addition, you get rigid boxed corner posts with unitized, "sagproof" subframe for extra-long service. Call your truck dealer, or St.Paul Distributor today for full details on sizes, styles, etc. to fit your needs. St.Paul Hydraulic Hoist Customer Service Dept. 36133 Main St., Wayne, Mich.

Our 41st Year

St. Paul

Hoists

Dump Bodies

Refuse Loaders

Oldest in reputation . . newest in cost-saving features

SELECT YOUR SLING

... Continued from page 118

do serve a variety of purposes. Typical uses are setting tanks and raising oil refinery chambers.

Multiple-Part Slings

In the construction of multiplepart wire-rope slings, the principle of lacing or braiding ropes of smaller diameter is followed instead of using a single wire rope as the body of the sling. Two forms of such multiple-parts slings are called the flat-laced and the braided types.

A flat-laced sling is simply what the name implies - with several parts of wire rope laced together to form a smooth, flat-bodied sling. Actually, the form of the body section is flat rather than round, so that load pressure is distributed over a greater area than with a round-bodied sling. Consequently, it has a strong gripping power on both flat and round surfaces, and there is less wear on the sling, with less marking of highly finished surfaces on the load. Also, there is greater flexibility in the slingfor easy handling.

The loops at the ends of the flat-laced slings are designed to be self-supporting without the use of thimbles or servings, as are usually required in the case of other multiple-part slings. Loops are formed by laying in an additional section of wire rope, which forms a round section loop end. No splicing is required in that operation, and flexibility is maintained in the sling—both in body and the loops.

Braided Slings

Braided slings consist of several parts of wire rope assembled into a round-bodied braid. The most commonly used types are 6-part or 8-part braided slings.

The braiding process provides a highly efficient combination of all-around flexibility with utmost strength. Because of the braiding, internal tension in the sling is at a minimum, so there is far less tendency to kink or loop. It wraps around a load easily and securely, without becoming "set" or deformed in any way.

This makes the sling exceptionally easy to handle, easy to apply to both the load and the crane hook. Odd-shaped loads, as well as slippery objects, are also more easily carried. Highly finished loads are held snugly and surely with braided slings, without marring or scuffing the finished surfaces.

Because of the combination of

wire-rope parts formed into a braid, considerable strength is built up into this type of sling, as compared with a single-part sling of equal flexibility. Consequently, this type of sling, as well as the flat-faced type, is most suitable for heavy-duty work. Both types are available with wire-rope parts in sizes from 1/8-in. It is



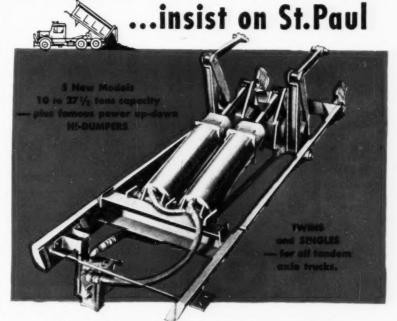
BRAIDED SLINGS provide a highly efficient combination of all-around flexibility with utmost strength. They don't "set" or deform.

easy to understand, then, that if you use an 8-part sling, with each part consisting of a complete wire rope, you are able to carry loads of tremendous weight, yet maintain sufficient flexibility in the sling for easy handling.

Flat-laced and braided slings may be used in single part or as two-, three- or four-leg bridles; also in place of single slings and may be specified for the most difficult applications.

(Continued on next page)

For better performance in **HEAVY-DUTY HOISTS**



NOW stress-proved and WORK-RATED for lowest cost per payload hour

Vou profit two ways by choosing St.Paul for heavy-duty hoist installations: (1) NEW stress-proved design (with 50 advanced improvements) assures better all-around hoist performance. (2) NEW conservative ratings—based on practical field experience—mean St.Paul hoists deliver every ounce of capacity shown in the ratings, with plenty to spare!

Consequently, more and more St.Paul users are finding that they can haul consistently full payloads for more hours, with substantial savings in down-time and hoist maintenance—doubly important in heavy-duty operations!

For convincing proof, see your St.Paul Distributor. Or, better still, equip several of your trucks with new St.Paul heavy-duty hoists and let your cost records speak for themselves! St.Paul Hydraulic Hoist, Customer Service Dept. 36133 Main St., Wayne, Michigan.



New sliding tension bars absorb shock loads, avoid danger of cracking side rails or chassis frame,



New equi-lift strut arms equalize stresses, prevent binding or buckling from uneven load conditions.



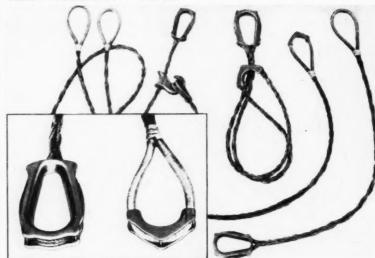


Heavy-duty light-weight
WRIGHT PRECISION POWER SAW
slices through a stack of timber in seconds!
Cuts on-the-line with only 3/16" kerf.
Chrome-plated blades resharpen and set
like hand saw. Safety-endorsed. Guaranteed.
Write for on-your-job demonstration—
see why no other type of power saw can
equal WRIGHT'S cost-cutting ability.

WRIGHT POWER SAW AND TOOL CORP.

292 Longbrook Ave., Stratford, Conn.

Service and Sales Offices throughout United States, Canada, Hawaii and Europe.



A NEW 8-PART BRAIDED SLING features an entirely new type of reusable thimble fitting. The pin-lock thimbles are attached by pins instead of conventional hammer-down clamps.

Proper Diameters and Lengths to Order

Regardless of the type of sling used, you must determine the most suitable and most efficient sling length and diameter for the given application. These can only be calculated from the weight and shape of the load to be lifted. Also it is necessary to know whether the legs of the sling will lift vertically, or at an angle. The nearer vertical the legs, the less the tension in the sling.

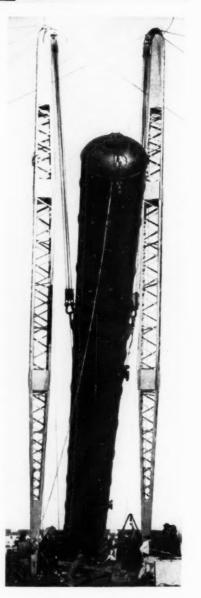
This is illustrated in the accompanying diagrams. It shows, for example, that a rope lifting a 1,000-lb load with legs vertical, requires a 1,000-lb capacity sling. As the vertical angle increases, the sling must be of continuously greater capacity—up to about six times the weight of the load at 170 deg.

If you have any question regarding the lengths or diameters of slings you should use, be sure to tell your supplier all the details of your requirements—the only sure way of getting exactly what you need.

When ordering, the length is customarily shown from bearing to bearing of loop, thimble, hook or socket for standard, flat-laced

(Continued on page 124)

IT'S GOOD TO KNOW your slings and applications when you tackle a job like this.



Fast Job Starts... LOWER COSTS



Form ALL Walls Straight, Circular and "Y" with ONE System!

- FASTER JOB STARTS . . .
 UNI-FORM Panels are ready to use when they reach the job.
- AUTOMATICALLY ACCURATE . . .
 Simple mechanical assembly
- EASIEST FORM ERECTION . . .
 Lock into rigid, integral unit
- MINIMUM ALIGNMENT and BRACING . . . Required on 1 SIDE ONLY

SAVE TIME . . . LABOR . . . MATERIAL

Write today for full details on Universal's "Sewage Treatment Plant Concrete Forming Package"... UNIFORM Panels, "Y" Wall Forms, FREE Engineering and Field Service. It's designed to make money for you!

CIRCULAR WALLS TOO!

Elmira Sewage Treatment Plant, Elmira, New York General Contractor: Corigliano Brothers, Ossining, New York Engineers: Nussbaumer & Clarke, Buffalo, New York

Standard UNI-FORM Panels form the aeration tank. Alignment and bracing on inside only give clean, safe outside working area.

UNIVERSAL FORM CLAMP CO.

GENERAL OFFICES AND FACTORY: 1238 N. KOSTNER . CHICAGO 51, ILLINOI:

OFFICES AND WAREHOUSES:

SAN LEANDRO, CALIF., 2051-9 Williams St. - LOS ANGELES, CALIF., 9701 Isis Ave. - HOUSTON, TEXAS, 2314 Preston Ave.

CLEVELAND, OHIO, 24901 Lakeland Blvd. - BALTIMORE, MD., 661 S. Monroe St.

DISTRIBUTORS IN PRINCIPAL CITIES

Service

Wherever

You Build ... Coast to Coast

Copyright 1953 by UNIVERSAL FORM CLAMP CO., Chicago 51, III.



VIBRATORS

Gasoline Engine or Electric Motor Driven

CONCRETE GRINDERS

OTHER PRODUCTS

FRONT END SHOVELS for Industrial Tractors

HEATING KETTLES for Asphalt and Tar

AGGREGATE DRYERS

for Stone and Sand

ASPHALT PLANTS

Portable - Stationary

Write for Circulars

White Mig. Co.

ELKHART 6

INDIANA





UNLOADING a 10-yd Marion shovel is a big job. The track weighs 41 tons and the frame, 110 tons. It was handled with four 7/8-in. six-part flat-laced slings from two cranes.

and braided slings. For grommets, the circumference should be given or the length, when doubled.

Quality of the sling used is extremely important because workers' safety, as well as efficiency and economy are involved.

Sling testing by users is a good idea wherever and whenever facilities are available for that purpose. Work tests also are advisable to determine exactly how a particular make, type or size sling performs best on the job.

How to Calculate Diameter of Rope for Slings

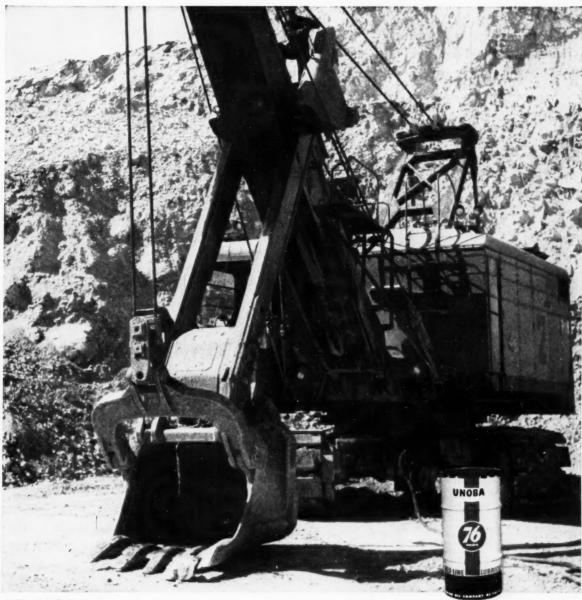
TO DETERMINE the diameter of rope to be used for given conditions, the stress in each leg of a two-legged sling is taken as equal to half the load divided by the sine of the angle at which the leg is inclined to the horizontal.

Figure 1 shows how the tension in the rope increases as the angle with the horizontal decreases. Diagram "F" demonstrates the high tension produced when a sling is used at a very flat angle.

The chart in Fig. 2 may be used in determining the safe load capacity of a given sling or in calculating the proper rope to use for a given load.

The sloping lines correspond to the legs of the sling taken at intervals of 5 deg. They may be used as shown by the diagram in the upper left-hand corner to determine the angles formed by the legs at the ring or link, and with a horizontal plane.

To illustrate this, a triangle is shown in heavy lines, one side of which is detailed as the leg of a (Continued on page 126)



UNOBA grease helps tear down mountains

When mountains must be moved, UNOBA protects against rust and this giant electric shovel does it with a four-cubic-yard bite. Dependable lubrication is vital to UNOBA's adhesive film. trouble-free operation of rugged equipment like this. That's why this shovel has the protective lubrication of UNOBA grease.

corrosion. Even steam cleaning and boiling water don't remove

UNOBA eliminates excessive wear because its tenacious coating cushhelps absorb shocks.

UNOBA is a multi-purpose grease. By using UNOBA you reduce grease inventories . . . lessen the chance of using the wrong lubricant...save yourself time and money.

Give your equipment the deions straining and grinding gears, pendable protection of multi-purpose UNOBA grease.

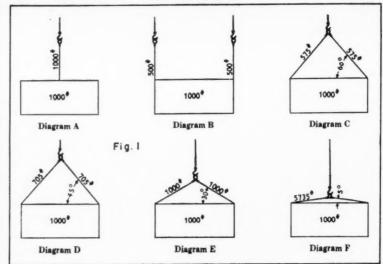
UNION OIL



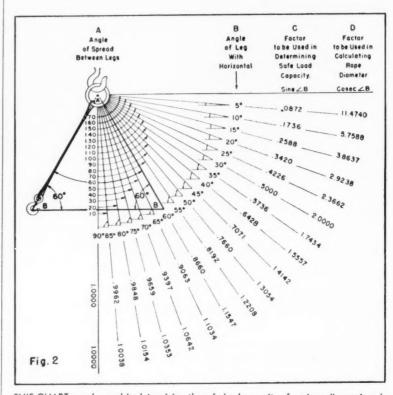
COMPANY OF CALIFORNIA

Makers of T5X-the amazing purple heavy-duty motor oil.





HOW TENSION in a sling increases as the angle with the horizonal plane increases. In (A), a 1,000-lb load creates 1,000-lb tension on a vertical center lift. (F) demonstrates the high tension produced when a sling is used at a flat angle.

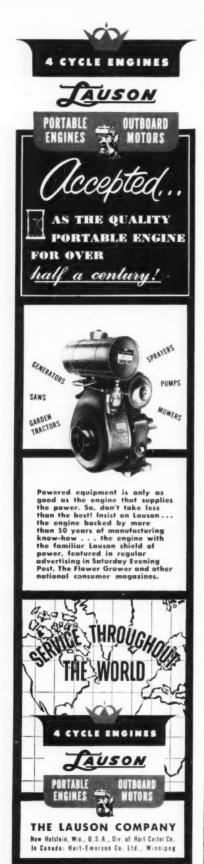


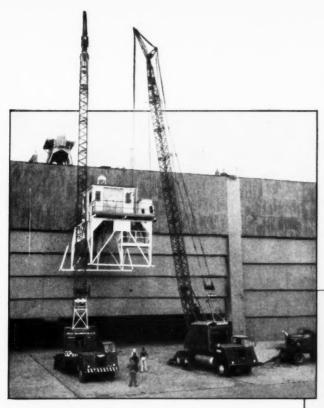
THIS CHART may be used in determining the safe load capacity of a given sling or in calculating the proper rope to use for a given load. The sloping line corresponds to the legs of the sling taken at intervals of 5 deg. It's a handy chart to have around.

sling. The legs form the 60-deg angle "A" at the top, and two 60-deg angles "B" between the legs and a horizontal plane.

The angle of spread (at ring or link) is shown in the vertical column A. The figures shown under B are the angles between the legs and a horizontal plane and are the ones used in the calculations. Under C are the factors to be used in determining the safe load capacities and under D the factors used (Continued on page 130)







All lifts are easier with a CRANE MOBILE

... on TWIN lifts

There's only one way you can beat the performance of a BAY CITY CraneMobile on high lifts or heavy lifts and that's with a pair of CraneMobiles. Here, one team of CraneMobiles is handling a twin lift on a 7-ton antenna tower atop a 60-ft. hangar at Long Beach, California. And another pair of CraneMobiles is skidding wood floats into the Mississippi River at the Minneapolis Yacht Club. That's typical of the way these powerful, efficient, versatile cranes make all lifts easier and every job faster. Both crane and carrier are engineered and built as a unit by BAY CITY to give you a balanced machine with a low center of gravity. CraneMobiles are available in capacities up to 25 tons . . . a selection of carriers to suit job requirements.

Compare these advantages . . . a few of many.

- Collapsible high-gantry permits raising maximum recommended boom lengths from horizontal without outside assistance.
- Accurate, fast independent boom hoist will raise or lower boom, or boom and load, under power only.
- Power load lowering device may be quickly engaged or disengaged to lower heavy loads smoothly and with precision.

Your BAY CITY dealer can give you complete information about Crane-Mobile. See him today. BAY CITY SHOVELS, INC., Bay City, Michigan. Handy pocket-sized booklet of facts and features tells why "all lifts are easier with a Crane Mobile". It's loaded with interesting information, it's nicely illustrated and it's yours for the asking. Just write us.



217



BAY CITY



SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

THINK BIG.

HEN YOU THINK CRUSHING AND SCREE

THINK CEDARAPIDS. ON EVERY JOB!

YOU aggregate producers are in a business where you have to think big in terms of the production and performance of your equipment. It just naturally leads to "thinking Cedarapids" for every job, because Cedarapids equipment is designed by construction men for construction men. Cedarapids engineers know the problems of the field because they're in the field finding out what it takes to keep ahead of changing conditions and methods, and meet the demands of constantly increasing production. They know you have to make money to stay in business . . . so they devote every effort toward designing types and sizes of equipment to meet your specific requirements at the low operating and maintenance costs that give you a definite advantage in competitive bidding as well as a comfortable profit.

Whether your next job is large or small, easy or difficult, it will pay you to get complete details about the Cedarapids equipment that helps you think big. Your Cedarapids distributor will gladly recommend the equipment that gets the best results for you, at the lowest cost . . . call him today for facts and figures.

IOWA MANUFACTURING COMPANY Cedar Rapids, Iowa, U.S.A.



The Cedarapids "Rock-It" is a twoin-one unit that reduces 22" stone down to road stone or aglime in one operation. Capacity? Aurora Limestone Products, of Aurora, Iowa, averaged a consistent 100 tons per hour on a 50,000 ton road stone job. Their "Rock-It" has produced 100 tons per hour and also 120 tons per hour on different jobs to keep well ahead of schedule.

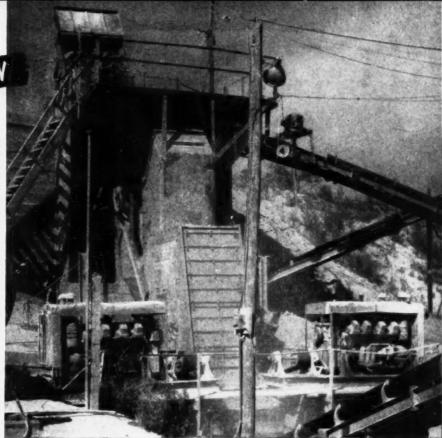
For crushing gravel, "Rock-It" Plants are now available with a 3018 Roll Crusher, in place of the 3033 or 2033 Hammermill, if desired. Your Cedarapids distributor can help you select the right crusher for your requirements.

BIG PRODUCTION

Cedarapids Double Impeller Impact Breakers can't be beat when it comes to hanging up tremendous daily tonnage records. Concrete Materials and Construction Company, using a Model 5050, averaged 600 tons per hour and hit a peak day's production record of 14,472 tons on their New Jersey Turnpike contract.

Using a Model 2020, Western Indiana Gravel Company worked an "impossible" pit and made money. Their problem was to produce gravel with 75% crushed particles in a pit containing 19% soft stone, several seams of conglomerate, with most of the gravel in the 1" to 1½" range, and very little plus 5".

For big volume of cubical shaped aggregate, for extremely low-cost operation, and for profitable production under tough conditions, be sure you investigate the advantages of Double Impeller Impact Breakers. Ask about the new portable plant.



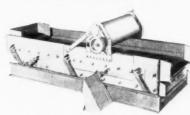
BIG PROFIT

Ask Reno Construction Company about Cedarapids Unitized Plants... they own six of them! They can depend on average hourly production of 150 tons from each plant... or they can combine the four basic units of the Unitized Plants in a number of different ways to meet specifications for every size products on other jobs.

Talk to B. L. Anderson of Cedar Rapids, Iowa. One of his three Unitized Plants is turning out 4 products at a time at a 210 ton per hour clip. That's "thinking big" about production.



HORIZONTAL VIBRATING SCREENS



More efficient horizontal screening action, highly accurate gradation and large capacity combine to give you faster and more profitable screening at lower cost. Sizes range from 3' x 8' to 4' x 14' in double or triple deck styles.

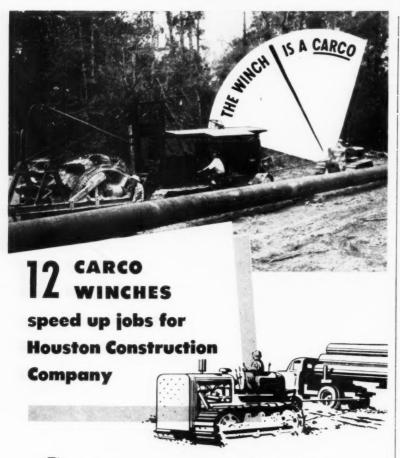


They're built to handle the toughest rock without pampering and produce up to 500 tons per hour at low cost! Available in 6" x 12" to 32" x 40" sizes in plain or roller bearing models. Ask about Twin Jaw Crushers for even higher capacities,

ROLL CRUSHERS



Here are the ideal units for producing a large volume of smaller sized aggregates. Seven sizes (from 16" x 16" to 40" x 24") available with two smooth or two corrugated roll shells, or one of each, depending on the product desired.



N PREPARING THE BED on a 40-mile stretch of a 158-mile, 30-inch pipeline from Texas to Tennessee, the Houston Construction Company used one of their 12 Carco GO winches to tow a 30-ton ditcher. This ditcher has a 12-foot cutting wheel that cuts about one mile of bed, 5½ ft. wide by 6 ft. deep, every 12 hours.

Carco GO winches were specified because this winch was designed and built for pipeline and oil field work. It's a two-speed winch . . . a slow speed with high line pull for the hard, steady pulls needed in towing heavy machinery, rescuing mired and ditched equipment and pulling long pipe sections . . . and another speed for lighter winching jobs such as loading, unloading, lifting pipe, and general construction and oil field uses.

The Carco GO winch has an extra large cable capacity for the "long reach." It mounts on tractors in the 76- to 100-horsepower range. A four-roller fairlead, which maintains maximum line pull regardless of the direction of the load, can be easily attached. See your nearest Carco dealer. PACIFIC CAR AND FOUNDRY COMPANY, Renton, Washington. Branches at Portland, Oregon and Franklin Park, Illinois.

WINCHES FOR ALL



SELECT YOUR SLING

... Continued from page 126

when calculating the diameters of the rope required.

Examples:

(1) What is the safe load that may be handled with a 2-leg bridle sling made of high-quality \(\frac{5}{8} \)-in. dia wire rope, where the conditions require that the legs be spread at an angle of 70 deg?

Fig. 2 shows that if the angle of spread between legs is 70 deg, the angle (B) that each leg makes with the horizontal (when in balance) is 55 deg. A stress of 2.3 tons (see Table 1) could be applied to each leg, and 4.6 tons or 9,200-lb total for the sling. To determine the safe load at the required angle the figure 9,200 is multiplied by the factor .8192 shown in column C opposite the 55-deg horizontal angle.

Required safe load W, at given angle of spread = safe load for two vertical ropes \times factor in column C = $9.200 \times .8192$ 7,536 lb

(2) What diameter rope must be used in a two-leg bridle sling to handle 10,000 lb when legs are spread at an angle of 80 deg?

As in the first example the chart will show that with the legs spread at an angle of 80 deg the horizontal angles would be 50 deg each. One half the load or 5,000 lb must be carried by each leg.

To calculate the tension developed in each leg by this vertical load of 5,000 lb, multiply the load by the factor in column D opposite the angle of 50 deg.

Tension T in one inclined leg = $\frac{1}{2}$ total vertical load \times factor in Column D.

 $= 5{,}000 \text{ lb} \times 1.3054 \atop 6{,}527 \text{ lb}$

Referring to Table 1, it will be seen that to handle 6,527 lb safely on a single leg, a 3/4-in. wire rope is needed.

Table 1 . . . Safe Loads for Standard Single Wire-Rope Slings

(Vertical I	Hitch)
Rope diameter inches	Weight tons
1/2	1.5
5/8	2.3
3,4	3.4
7/8	4.6
1	6.0
118	7.5

NOTE: Specifications used are based on 6x19 fibercore Hercules Red-Strand wire rope. Safe leads shown provide a factor of safety of from 6 to 7.

to bring your digging up to date MODEL 1055 — 3 1/2 yards MODEL 955A - 2 1/2 yards

You have the jump on costs when your new P&H takes over the tough digging jobs. Why? Because there's no other machine to match its performance. You have the speed — a 15% to 25% faster digging cycle — for bigger production. You have the all-welded strength to take shock loads that would K.O. less rugged machines. You have the stability to exert more power at the tooth point. That gives you added capacity.

If you're ready to cut your costs, these P&H's are ready to help you,

MAGNETORQUE*

the greatest shovel improvement in 20 years. It's smoother, faster, more dependable. It eliminates the old swing frictions with their constant headaches and replacement costs. Magnetorque lasts the life of your machine. You should know the facts about it!

*T.M. of Harnischfeger Corporation for electro-magnetic type coupling.

LARGE EXCAVATOR DIVISION

HARNISCHFEGER

CORPORATION

MILWAUKEE 46, WISCONSIN





A front end loader that will dump 10 ft 9 in. and reach 3 ft 5 in. is . . .

Caterpillar's Newest ... the No. 6 Shovel

UNVEILED at a special showing in Chicago last month is Caterpillar's answer to a market desiring a 2-yd tractor-shovel that can dig, load, bulldoze and stack. It's officially called the Caterpillar No. 6 Shovel.

The new unit outwardly resembles the widely accepted and familiar D4 Shovel, formerly manufactured by Trackson, an allied manufacturer but now a wholly owned subsidiary of Caterpillar. Underneath, however, many changes and improvements have been added, which according to Ferd Haberkorn, central sales manager, speaking at a press conference, gives the No. 6 Shovel "the virtues of many conventional models of power shovels and the added capacity of high mobility".

Dumping height of the new machine is 10 ft, 9 in, which is adequate to clear loading sides of most carriers. The reach is 3 ft, 5 in., which should enable the operator to spot the loads in the center of most hauling units.

The Model No. 6 Shovel is powered with a 66-drawbar hp crawler

on a non-oscillating frame. It was designed from the ground up to accommodate the 2-yd bucket and is not the standard D6 tractor with a scoop bucket hung on the front end. The new unit appears to have excellent balance and stability.

An innovation on this machine is the mounting of the entire hydraulic system on the rear of the machine which should improve radiator cooling.

The lift cylinders have been horizontally mounted above the tracks to help keep out abrasive dirt. Side engine panels protect the engine from dust and other material. The air cleaner has been placed slightly to the rear and to the side of the operator to keep fuel cleaner.

The bucket itself is of 2-yd capacity and is made of layer plate to overcome abrasive action. To help shake out sticky materials from the bucket, Cat has provided a bell crank which strikes the stop on the lifting arm. The bell crank off-center mechanism assures a good load at each pass by a rapid

tilt of the bucket to the carrying position.

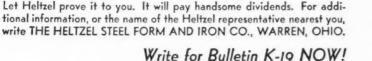
• Good Operator Comfort—Caterpillar engineers devoted considerable thought to operator comfort and efficiency in this new model. For example, the tractor seat has been raised 9 in. and moved forward 6 in. which gives the operator unobstructed visibility, front and rear, in the raised-carry and raised-dump position.

Because the hydraulic control valves and surge tank are located in the rear, the operator is free of the usual flexing hydraulic hoses.

The control levers for the bucket and the lift arms are located so both may be operated with only one hand. Another feature which should appeal to the operator—once the hydraulic lift arm control lever has been engaged, it remains in position without holding. This leaves both hands free to shift gears or turn the shovel, while the bucket continues lifting. At the top part of the lift, an automatic

(Continued on page 134)





have gone to such great lengths to design and build and to prove

the Heltzel form is the finest ever made.



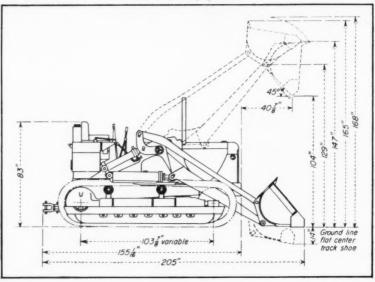
Vibro-Plus handles the stiffest mix with ease—because its patented Rollaear head increases the 3600 RPM shaft speed to 11,000 to 15,000 VPM. Concrete is consolidated more rapidly, more effectively. Equipment lasts. longer. Maintenance costs are less. Write for data bulletins and nearest distributor

TYPE MRSB is gasoline driven, powered by 21/2 or 41/2 HP Wisconsin or Briggs Stratton aircooled engine. 360° swivel base. Foolproof snap coupling for 20 or 30 ft. flexible shaft. No V-belt, clutch or gears, Grease fitting permits lubrication in 15 seconds while running. Head needs no lubrication ever. Interchangeable for electric or pneumatic power. 13/4"-2-3/16"-2-3/16"-4" diameter heads. **Grinding attachments** available.

OUR ENGINEERING DEPT. will recommend, design and build special equipment for any special purpose.



54-11 QUEENS BLVD., WOODSIDE, 77 , N. Y WORLD PIONEERS IN APPLIED VIBRATION



CATERPILLAR NO. 6 SHOVEL, a 2-yd track-type front-end loader is Caterpillar-built from ground up. It has five speeds forward from 1.4 to 5.8 mph.

kickout disengages the lever.

Five gears forward and four in reverse give the machine good versatility on a wide range of job con-

The No. 6 Shovel has larger front idlers and longer track roller frames than the standard D6 model. It also has an additional track roller on each side for better traction and lateral stability.

To help provide even more traction, floatation and resistance to side-slip, 18-in. flat-center shoes were designed specifically for tractor-shovel work. The raised center

Dumping Cylinders-Bore & Stroke

412 in. x 18 5/16 in.

of the shoe serves as street plates, and the cut-out center of the shoe gives better clearance action.

To give greater cross stability the standard equalizer spring has been replaced with a solid bar. This also helps to prevent track oscillation.

According to H. H. Howard, Director of Sales for Caterpillar, the new model will sell for \$16,000 F.O.B. Peoria, Ill. In production since early in April, a number of these machines have already been delivered and are being used in the field.

5.150

3.620

5,680

3.980

Specifications

Bucket Capacity:	Side-Mounted Housing (Sealed reservoir)				
Heaped 2 cu yd					
Struck 1.5 cu yd	the Filters				
Bucket Width 8 ft	Pump (Vane-Type, Front Mounted) @ 1000 psi				
Dumping Clearance	Output 56 gpm @ 1400 rpm @ 1000 psi				
(45-deg bucket tip) 8 ft 71/2 in.	Double Valve (spool type):				
Dumping Height	Positions:				
(Center of hinge pin to ground) 10 ft 9 in.	Lifting circuit Raise, Lower, Hold, Float				
Dumping Reach	Tilting circuit Tilt back, Hold, Dump				
(45-deg bucket tip) 3 ft 5 in.	Lines (pump to reservoir to cylinder hose)				
Maximum Digging Depth	Type Steel Tubing				
(Below ground line) 1 ft 2 in.	Hose and Fittings (cylinder to lines)				
Cutting Edges High strength steel with hard-face cutting edge	High Pressure Rubber Hose with Flange Fittings				
Bucket Tip Back 35 deg	Drive Coupling (from tractor crankshaft				
Discharge Angle:	pulley) Type Universal Joint				
(Controllable in all bucket positions)	Rediator Guard 3's-in. Steel Plate				
At Maximum Lift 50 deg below horizon	Liquid (required for hydraulic system)				
At Ground Level 90 deg below horizon	Capacity 35 Gal				
Lifting Mechanism Hydraulic	Horsepower				
Lifting Arms-cross-braced for rigidity	Drawbar 66				
Box Section	Belt 76				
Main Frame (Construction)	At Rated				
Heavy Structural Steel	Drawbar pull (lb) Speed Maximum				
Cylinders (Double Action):	First 17,000 18,700				
Lift Cylinders-Bore & Stroke	Second 10,900 12,000				
6½ in x 32 in.	Third 7.450 8.200				

Fourth

Fifth





BESIDES CUTTING OUT ROADS, Riendeau uses his TD 14 to push his truck and a 15-ton load through quagmire road sections.



RIENDEAU HANDLES BULLDOZER HIMSELF. He says: "I've had first-hand experience with the terrific performance these highest quality Cities Service Products deliver."

New Hampshire Logger Cuts Truck Roads Through Forest!

Oscar Riendeau of Berlin, N. H., has been hauling logs for about 15 years. To get his lumber out of densely overgrown New England forests, Riendeau has to cut his own truck roads. He carves out his twisting, turning truck roads with an International TD 14 Diesel . . . powered by Cities Service #2 Diesel Fuel! . . . lubricated with Cities Service Lubricants!

Says Riendeau: "I use Cities Service Products throughout my operation . . . diesel fuels, lubricants, gasolene, and even tires. These high quality, dependable products have kept my equipment at work full time under really rugged conditions. I heartily recommend them for any earth moving or trucking operation."

Why not try Cities Service Fuels and Lubricants in your operation?

CITIES (SERVICE

RIGHTon the line!



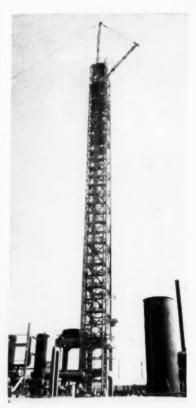
On Irrigation projects, too—as on all types of trenching jobs—Clevelands show why they are known throughout the world for outstanding, all-around Dig-Ability. The reason is simple: Clevelands deliver big daily production year after year, with utmost dependability and at very low cost. That's why Clevelands are <u>Right on the line</u> for you!

Get the full story on CLEVELANDS from your local distributor



THE CLEVELAND TRENCHER CO.

Pioneer of the Modern Trencher



GUY DERRICK SITS on permanent stairwell and elevator shaft of refinery unit it is erecting. Use of this structure saves cost of temporary pedestal for derrick, whose top-mast spider is almost 500 ft above grade.

Permanent Shaft Acts

CATALYTIC CONSTRUC-TION CO. pulled a smart, moneysaving trick at its \$10,000,000 refinery expansion job for Standard Oil Co. of Texas at El Paso. The Philadelphia outfit first built the permanent stairwell and elevator shaft of the plant's 11,500-bbl per day Houdriflow catalytic cracking unit, then temporarily used this as a pedestal for the guy derrick that erected the rest of the apparatus. The unusual procedure eliminated the time and cost of putting up a separate derrick support, which only would have to be dismantled later anyway.

Orthodox construction practice calls for erection of a guy derrick able to set top pieces of the cracking unit, which on this job reached a height of 360 ft. The foundation, erection rental or depreciation, and dis-assembly of a pedestal for such a derrick frequently runs in the



REFINERY UNIT RISES around its shaft. This is 11,500-bbl per day Houdriflow cracking plant being built for Standard Oil Co. of Texas by Catalytic Construction Co., Philadelphia. It's part of \$10,000,000 job.

as Temporary Pedestal

neighborhood of \$50,000 to \$65,000. In addition the El Paso project was complicated by an extremely limited area in which the plant had to be built.

Catalytic's engineers thought that the dual problems of cost and tight space could be overcome by making the Houdriflow stairwell and elevator shaft act as the derrick pedestal. There was no doubt of its ability to serve the purpose. It was to consist of a 45½-ft high base section of reinforced concrete, surmounted by a 17x21-ft steel structure rising more than 300 ft higher.

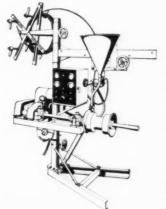
The unit was designed to support a catalyst elevator 300 ft long on a head shaft 311 ft above grade. The head shaft was calculated to have a reaction weight of 380,000 lb, and the structure had to withstand this plus a wind load of 20 lb

(Continued on page 140)



Here's fast, low-cost welding that is *really* automatic. Rexarc Welders and Positioners are designed for welding on all types of longitudinal or circular surfaces, such as crawler type tractor rails, scraper blades, structural shapes, fabrications, rollers, sheaves and shafts. All types of positioners for special applications will be engineered upon request.

Outstanding features include: provision for both low and high voltage welding; high frequency starting and stabilization, assuring a steady arc at all times; control over low arc voltage and amperage, which minimizes stress and dilution of parent metal. Welding can be lineal or cross-bead on flat or circular shapes, continuous or in sequence. Removable head is transferrable from one positioner to another.



WELDING ON CIRCULAR SHAPES

Welding on shafts, rollers, sheaves, idlers and similar circular surfaces is simple since rotating spindle is vertically adjustable to accommodate a large range of work sizes. Angular positioning for welding idler and roller flanges, crusher mandrils and similar applications is accomplished by hydraulically controlled elevating device. For welding on long circular work, supporting trunnions equipped with friction bearing rolls are available.

SEE YOUR WELDING SUPPLY DISTRIBUTOR OR WRITE, WIRE OR PHONE

THE SIGHT FEED GENERATOR COMPANY

49 EAST THIRD STREET, WEST ALEXANDRIA, OHIO, U. S. A.

51 PAYLOADS AN HOUR CUT 12% FILL 500' 70' 130' Haul conditions on Grandview Construction Company's New York Thruway contract, at Selkirk, N. Y.

LOAD—haul—spread—and return up a 12% grade—51 times per hour! That's the record of the three Heiliners owned by Grandview Construction Company of Mt. Vernon, N. Y. Moving 1,400,000 cu. yds. of sand clay with a heavy water content, each Heiliner made 17 trips per hour—with an average cycle time of 2 min. 56 sec.

Here's the kind of fast-stepping Heiliner performance which makes earthmoving profitable. It's the kind of production that gives you the edge when bids are let.

Positive "TILTING FLOOR" EJECTION HELPS SLASH CYCLE TIME!

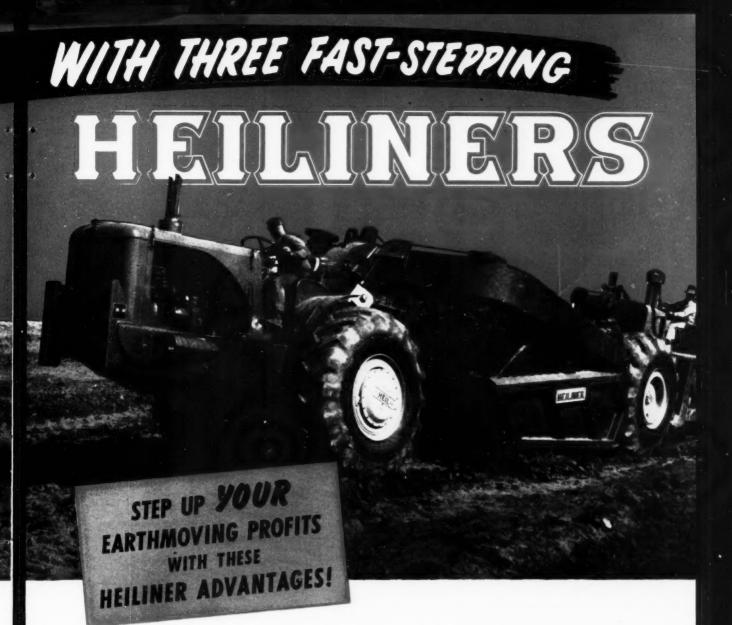
On Grandview's New York Thruway job, spread and turn time averaged 15.9 seconds . . . spreading heavy, sticky sand clay! It's proof positive that the Heiliner's positive "Tilting Floor" ejection helps cut cycle time to the bone.

Heil's exclusive "Tilting Floor" ejection is the simplest type of forced ejection known. The floor of bowl is



hinged back of the cutting blade. As the rear push-out ram is activated by the relatively low line pull, the floor simply tilts up to a maximum discharge angle of 75°. The load is forced out the wide front opening, while even the stickiest material is scoured from the sides and stationary back of the bowl. Material is dumped fast and clean... there's no extra yardage left in the bowl to cut down the size of your next load.





For faster loading, the dirt "boils" up in the center of the bowl, loading front and back evenly so no long pull is necessary to fill clear to the back. Haul speed is fast... 25 MPH fully loaded. The powerful 200 HP Cummins diesel gives you lugging power to spare, while big 24:00 x 29 tires with wide-base rims provide the extra traction and flotation you need in soft going. Heil's exclusive, patented Hydro-Steer handles with passenger car ease... this easy steering control plus big, safe four-wheel brakes give operators confidence to use the full

power and speed of the rig. Heil's famous planetary drive, with full 4" gear faces on sun and planet gears, provides a low-torque drive for smoother, more positive power transmission to each wheel, and permits full utilization of engine horsepower.

Heiliners are designed from the ground up with many other features to keep up a profit-making pace on every job, shift after shift. Watch a Heiliner on the job, then ask your Heil distributor for complete details about every feature.

R-2

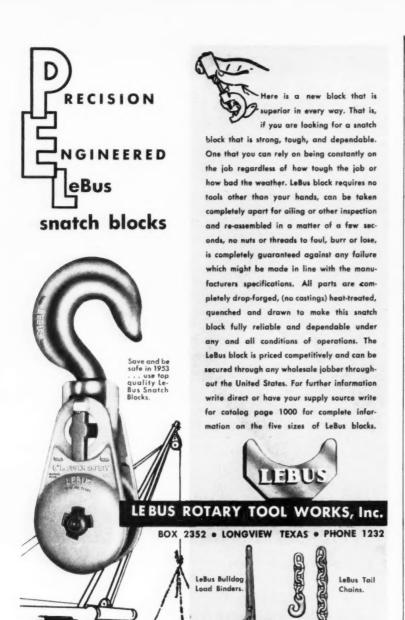
THE HEIL CO.

3002 WEST MONTANA STREET • MILWAUKEE 1, WISCONSIN

DEPARTMENT 243

FACTORIES: MILWAUKEE, WIS., HILLSIDE, N. J.

District Offices: Hillside, Washington, D.C., Atlanta, Cleveland, Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle.



LARGE STOCK OF

REINFORCING BARS

ALSO STRUCTURALS, BARS, PLATES, SHEETS, ETC.

ALBOT STEEL CO., INC.

LYNDHURST, NEW JERSEY
TELEPHONE: RUTHERFORD 2-10400

TEMPORARY PEDESTAL

... Continued from page 137

per sq ft, with a deflection not to exceed 12 in. in a 70-mi wind.

These design conditions would result in a structure which, when guyed, would adequately support the erection derrick—a 25 ton American unit with 145-ft mast and 125-ft boom. But because of the pedestal guys and limited working area around the base, the derrick would have to lift each piece of equipment to the top of the structure, then swing 90 deg, before lowering it into place.

However, by heavying up some of the bracing in the tower's upper panels and by adding temporary diagonals in bays not otherwise braced, the structure could be left un-guyed and still support the derrick. High lifts to clear the guys would then be unnecessary. The tower was beefed up in this way, therefore, at an additional cost of less than \$1,000.

Tower steel was erected with a basket pole. As the structure grew, the mast and boom for the guyed erection derrick that was to sit on its top were assembled within it. Then, when the tower was topped out, the derrick was ready to be hoisted aloft immediately.

Scheduling Also Helps

As mentioned, working space at the plant was extremely limited, precluding the usual storage of equipment while it waited to be set. Instead, accurate delivery dates for all major items were established on a schedule that would permit proper sequence of work in the field. Weekly construction plans were laid with these delivery schedules as the determining factor.

Access roads and a rail spur were built directly into the construction area so the carrier could deliver the equipment within reach of the derrick or cranes. Thus, measured by tonnage, 95% of the plant's equipment went directly into its final setting immediately upon arrival.

In only one instance was there any serious delay in a major item. This was a tower requiring extensive piping, which was off schedule because of a steel strike. To minimize the effect of this delay, Catalytic Construction Co. completed the piping, so far as possible, in advance of the vessel's arrival. The pipes were held by temporary supports in such a manner that the vessel could be set in place through them.



HOMELITE CARRYABLE PUMP on YOUR Job and Eliminate Delays

On any repair or construction job, water causes delays. And delays cost money . . . particu-

larly when men have to stand around idle.

Put a Homelite Pump on the job and watch those delays disappear. In no time it *gets* to the job . . . no trucking problems, no planking, no pushing, no pulling. One man carries it and sets it up right where you need it. Quick starting . . . and with the

fastest self-priming...a Homelite will pump up to 15,000 gallons per hour without clogging or trouble. It draws water 28 feet and of great importance it will keep seepage at strainer level automatically.

Figure it out, with the time . . . which is money . . . saved by a fast-action Homelite it wouldn't take many jobs to pay for a Homelite. Possibly, one job would be enough. Write for a free demonstration.

Manufacturers of Homelite Carryable Pumps • Generators Blowers • Chain Saws



1004 RIVERDALE AVENUE . PORT CHESTER, N. Y.

Canadian Distributors: Terry Machinery Co., Ltd., Toronto, Montreal, Vancouver, Quebec.

On-the-Job CONTRACTOR-LABOR RELATIONS

by LEON B. KROMER, JR.

On Taft-Hartley

BILLS TO AMEND basic labor laws pour into the Congressional hopper as hearings toward changing the Taft-Hartley Act get under way in the Senate and House Labor Committees. There are bills to increase the Wage-Hour Law (Fair Labor Standards Act) minimum wage to \$1.25 per hr. (It's 75c now.) Others would amend various provisions of the Taft-Hartley Act and there are four providing for outright repeal of the Act.

Senator Taft has introduced an amendment similar to that which failed to pass the House in the last session of Congress. It would permit contractors and unions to enter into collective agreements before the start of a construction project. The agreement could provide for a union shop requiring employees to join the union within seven days. It differs from the previous amendment the Senator introduced (CM&E Mar. 1952, p.101) in that it gives preference to state laws on union security. A number of states have "right-to-work" laws much stricter than the Taft-Hartley Act on union security.

Another proposal which may seriously affect contractors if it should pass would prohibit a union representing the employees of one employer to represent also the employees of a competing employer. Employers in competition with each other would also be prohibited from having a common adviser on labor relations. While aimed at industry-wide bargaining, this bill would prevent contractors' associations from bargaining as a group or employing an association labor relations manager unless the bill's provisions specifically limit application and exempt construction.

Materials Boycott

Under another amendment proposed by Senator Taft a union could induce its members to boycott goods coming from a plant that is struck as a result of a labor dispute. Under the present laws such action is illegal. There have been a number of instances where unions have legally exerted pressure on contractors to refuse to use on their jobs material from struck plants. Building trades unions have many times worked on material that comes from a struck plant. If this amendment is passed they will not be required to do so and you could be faced with a substantial loss on a project.

In the meantime, on Capitol Hill, George Meany, President of the A.F.ofL. told the House Labor Committee that the union shop provisions of the present law were meaningless in the construction industry because of the 30-day waiting period. He claimed that it

(Continued on page 145)



New Scruggs Vandervoort Barney department store in fashionable Clayton, Missouri. Architect: Marris Armstrong. Consulting Engineer: Neal J. Campbell. Contractor: Gamble Construction Co.

QUALITY CONSTRUCTION begins with...



Quality controlled from open
hearth to finished product in the modern Laclede Mills,
these construction steels offer dependability of quality for
your construction needs



STEEL JOISTS

For strong . . . lightweight . . . economical construction. Spans to 40 feet.

WELDED WIRE FABRIC

Cold drawn, welded automatically . . . in rolls or sheets.

MULTI-RIB ROUND REINFORCING BARS

With Laclede improved design for maximum anchorage... and numbered to meet latest ASTM A305 Specifications.



Other Laclede quality construction steels: corrugated centering accessories • spirals • pipe and conduit.

LACLEDE STEEL COMPANY



WOULD YOU CLEAN ONLY PART OF YOUR FACE?

No, of course, you wouldn't! Then why clean only part of the oil in your engine? Why be satisfied with anything less than the best protection you can give your engine's moving parts? Keep all your oil clean, and all the moving parts of your engine protected, with warranted Winslow Full-Flow Filters!



Winslow Engineering Company 4069 Hollis Street · Oakland 8, California



More of what you want in CHEVROLET Advance-Design Trucks

- and here are 4 powerful reasons why:

NEW ENGINE POWER—TEAMED WITH LOWER COSTS! The improved Loadmaster engine with a new high compression ratio of 7.1 to 1, now delivers even more power. This great engine is standard on 5000 and 6000 Series heavy-duty and forward-control models—optional on 4000 Series heavy-duty models. In light- and medium-duty models the Thriftmaster engine offers traditional Chevrolet economy.

NEW STAYING POWER—FOR GREATER DURABILITY! Frames are heavier, stronger, more durable in all 1953 Chevrolet trucks. You'll find greater ruggedness and stamina. You'll find these trucks even brawnier and sturdier than Chevrolet trucks in past years—trucks that have long been famous for those very qualities. And this heavier construction brings new comfort and freedom from fatigue to drivers, too.

NEW BRAKING POWER—FOR QUICKER, SURER, SAFER STOPS! Two types of brakes on 1953 Chevrolet advance-design trucks provide greater stopping power and greater durability. "Torque-Action" brakes are standard front and rear on all trucks up to 4000 Series heavy-duty models. Extra-large "Torque-Action" brakes in front, "Twin-Action" type in rear are on Series 4000, 5000 and 6000 heavy-duty models.

NEW ECONOMY—LOWERS COST OF EVERY TON-MILE HAULED! Expect greater economy with Chevrolet trucks. New and greater stamina with extra gasoline economy cuts operating costs, maintenance costs in heavy-duty models with Loadmaster engine. And these great trucks list for less than comparable models of any other make! Chevrolet Division of General Motors, Detroit 2, Mich.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINESthe Loadmaster or the Thriftmaster-to give you greater power per gallon, lower cost per load. POWER-JET CARBURETORfor smooth, quick acceleration response. DIAPHRAGM SPRING CLUTCH - for easyaction engagement. SYNCHRO-MESH TRANSMISSION - for fast, smooth shifting. HYPOID REAR AXLE-for dependability and long life. TORQUE-ACTION BRAKES-on light-duty and medium-duty models and on front of heavy-duty models. TWIN-ACTION REAR BRAKES-on heavy-duty models. DUAL-SHOE PARKING BRAKE-for greater holding ability on heavy-duty models. CAB SEAT - with double deck springs for complete riding comfort. VENTI-PANES - for improved cab ventilation. WIDE-BASE WHEELS - for increased tire mileage. BALL-GEAR STEERING - for easier handling. UNIT-DESIGNED BODIES for greater load protection. ADVANCE-DESIGN STYLING-for increased comfort and modern appearance.



LABOR . . . Continued from p. 142

prevented the unions from organizing the casual workers. He asked for restoration of the closed shop "as a matter of right and equity" Going in the opposite direction was George W. Armstrong, spokesman for the National Association of Manufacturers. His recommendation on changing the law included stronger curbs on unions, prohibition of any form of compulsory union membership and even opposition to the corrective amendment proposed by Senator Taft. Because of the many conflicting opinions expressed at the hearings and the failure of the Labor-Management Advisory Committee appointed by the new Secretary of Labor, it is possible that no amendments, even corrective, will pass Congress this session.

Featherbedding

As George Meany (see p. 142) urged that Congress repeal the featherbedding provisions of the Taft-Hartley Act, the Supreme Court by split decisions ended a four-year fight on the makework aspects of featherbedding.

One case involved the practice in newspaper composing rooms of "bogus typesetting". Advertising material frequently comes to newspaper with type already set. The typographical union insists that the type be set even though it is not used, but thrown away. In the other case the musicians union demanded that local orchestras be hired to play during intermissions when theater operators hire big name bands for the feature performance.

In both cases the majority of the Court held that the unions had not violated the featherbedding provisions. Remember, the law states that it is an unfair labor practice for a union "to cause or attempt to cause an employer to pay or deliver any money or other thing of value in the nature of an exaction, for services which are not performed or not to be performed. The Court majority said that the unions had offered to have work performed and their members had performed work for the pay demanded. There had been no attempt, added the Court, on their part to obtain pay for work not to be performed and hence in violation of the law.

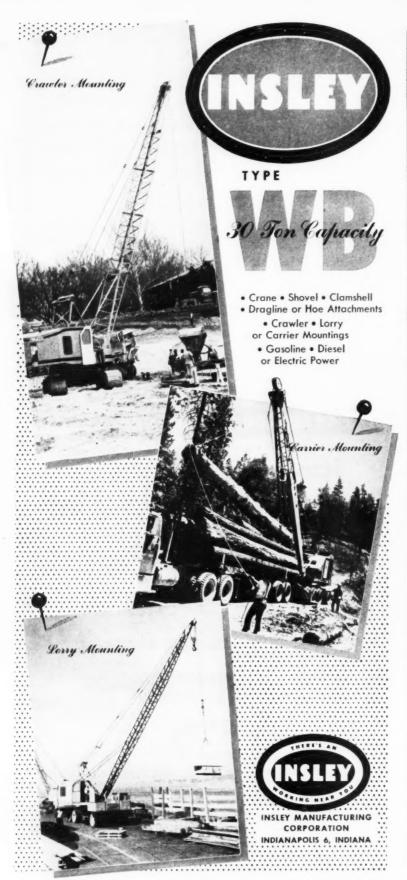
Industry spokesmen howled in protest that the decisions made the featherbedding provisions of the act meaningless and looked to



Handle heavy-duty lifting, leveling, moving and bracing jobs the safe, easy way Use a HEIN-WERNER "PUSH and PULL" hydraulic jack



1. M							
HEIN-WEF			ON				CONSIN
Send d	lescriptive	literature	and price	s on "Pus	h and	Pull"	jacks.
Name			T	itle			
Firm Name							_
Address							
City			Zone	State			



LABOR . . . Continued

Congress to strengthen them. Contractors faced with union makework demands had better look in the same direction, as they cannot obtain any help from the National Labor Relations Board unless no work is to be performed for the pay demanded.

Do You Know That...

. . . the Joint Board for the Settlement of Jurisdictional Disputes has been extended for another year? The Associated General Contractors, joined by the specialty contractors' associations, have accepted the changes proposed by the Building Trades Department.

N. Routzohn, former Congressman from Ohio, has been selected as the new Solicitor of Labor? He succeeds William S. Tyson, the Democratic appointee who resigned.

. . . if you want to make known your opinion on Taft-Hartley or any proposed amendments, you can write to the House and Senate Labor Committees? Likewise, you can request permission to testify before the Committees, particularly if you represent an association of contractors.

... two more states, Colorado and Idaho, have strong anti-union security measures pending in their state legislatures? Both bills would prohibit the closed shop; the Colorado proposal also would outlaw union shops, restrict picketing.

Coming for You: Another Maintenance Feature

PLANS ARE DEVELOPING nicely for the Fifth Annual Maintenance Directory issue of Construction Methods and Equipment. Like earlier directories, it will be published in the month of July and will be devoted entirely to articles, tips and photographs on the maintenance of construction equipment and related accessories.

The popular inventory listing of maintenance manuals available from manufacturers, inaugurated in 1952, again will be the chief editorial feature and promises to be bigger and more valuable than ever. Better reserve the number of copies you will be needing now. We will mail when they are ready.—Ed.

THE ENGINEER'S REPORT

LUBRICANT Tractor Roller Fubricant Track blarings—
UNIT Caterpillar D-8
Building roads to oil wellsCONDITIONS Ride-hill operation, grit, sand
PERIOD 5,000 hours
Bennett Murray Inc.

Track-roller bearings go 5000 hrs. in tough work!

a D-8 Caterpillar like this, lubricated with RPM Tractor Roller Lubricant, went 5000 hours without replacement of a single track bearing; during its two years of operation in all kinds of service, only the tracks were changed. Eight D-8's are used by Bennett Murray, Inc., Newhall, Calif., to build roads into oil well locations. Despite much steep, side-hill work-and the fact that they sometimes operate in oil sumps full of chemicalsthese dozers all get between 2500 and 5000 hours on a set of track-roller bearings.





rugged work Bennett Murray equipment does in many

parts of Southern California. Track bearings on all

MAKING A CUT THROUGH A HILL is typical of the lubricates an

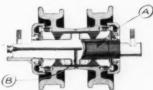
of their bulldozers are greased regularly with RPM Tractor Roller Lubricant.

REMARKS: There are three grades of RPM Tractor Roller Lubricant—Light, Medium, and Heavy—to meet all climatic and operating conditions in Caterpillar track—roller bearings. For Allis—Chalmers, RPM Tractor Roller Lubricant—A.C. Type is recommended.



.....

How RPM Tractor Roller Lubricant resists wear in the toughest service



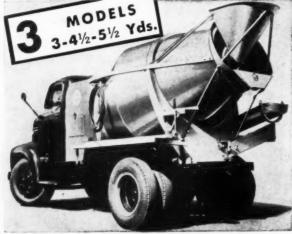
It flows evenly to all bearing surfaces, lubricates and retards rust formation.

- A. Contains chemical anti-wear agent maintains tough lubricating film.
- B. Has stringiness compound—improved viscosity, resists leakage, helps keep protective grease seal outside bearings.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

STANDARD OIL COMPANY OF CALIFORNIA, San Francisco 20 • STANDARD OIL COMPANY OF TEXAS, El Paso THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

PAYS OFF BIGGER 3 MODELS 3 -41/2-51/2 Yds. PAYLOADS

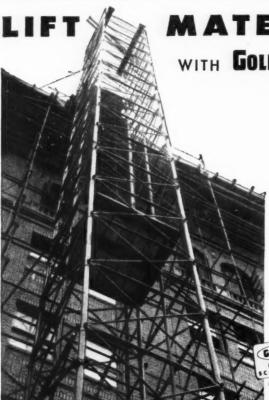


MONEY-MAKING FEATURES yet LOW PRICED & LIGHT WEIGHT

- Easier to handle on the road and on the job.
- Thoro-Mix action. Mixes and discharges all slumps.
- Simplest of all. No maintenance or service problems.
- Now available as 3-41/2-51/2 yd. mixer.

Construction Machinery Co's., Waterloo, Iowa

TRANSCRETE TRUCK MIXERS



MATERIALS for LESS!

WITH GOLD MEDAL STEEL HOIST TOWERS

This is only one of many types of equipment we have to help contractors increase profits by cutting construction costs. Gold Medal Steel Hoist Towers save erection and dismantling time and speed up material handling. Firesafe—they're easier and more economical to erect than wooden towers . . . and much safer, of course. All parts—interchangeable—are recoverable—they're used again and again without waste.

Ask for FREE Bulletin HT-2. See how these towers can speed your jobs.

PLATFORM SIZES—Light or Heavy

	Heavy Tower	Light Tower	
Size of legs	3' pipe	2" xhy pipe	
Section height	6' 6"	6' 6"	
Max. height	851' 6" Std.	130'	
Live Load Cap.	5000 lbs.	3000 lbs.	
Max. size bucket	35 cu. ft.	18 cu. ft.	

5'7" x 5'9"	5'7"x5'9" and 5'2 16"x5'9"
7'3" x 5'9"	7'3"x5'9" and 6'10 % "x5'9"
	73° x 5'9° with 2 a 2 concre

Remember this: we have all types of modern scaffolds. Our stocks, spotted in major cities from coast to coast, are the largest and most complete. Whatever your job . . . We can scaffold it for you with the RIGHT scaffold.

fos Greater Safety...Efficiency...Economy

THE PATENT SCAFFOLDING CO., Inc.

38-21 12th Street, Dept. CM&E, Long Island City 1, N. Y. West Coast Plant: 6931 Stanford Ave., Los Angeles 1, Calif.

MAKE NO MISTAKE... Jaeger gives you most air per dollar any way you figure

1. Compare your purchase cost: In every case, the price of your "new standard" Jaeger Compressor is lower than those asked even for out-dated "old standard" machines.

2. Compare your cost per cubic foot of air: Your "new standard" Jaeger, although it costs you less to buy, delivers 15% to 25% more cubic feet

of air per minute, at full 100 lb. pressure.

3. Compare your job costs: 15% to 25% more air means 90 to 100 lbs. pressure behind a full set of air tools instead of mere 70 lbs. pressure. This full pressure greatly increases their speed and impact, actually produces 30% to 40% more work with the same men and tools.



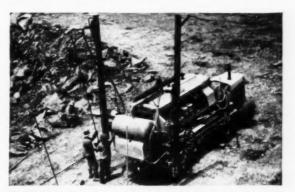
Model 125: First compressor to run a heavy duty breaker efficiently. Model 125: First compressor to run 2 heavy duty breakers or one heavy rock drill efficiently.



Model 185:—First to run 3 heavy duty breakers efficiently. Model 250:—First compressor to run 3½" wagon drill, 2 heavy rock drills or 4 heavy breakers efficiently.



Model 365:—First to run a 4" wagon drill with air to spare for plug hole drilling, or large Ka-Mo earth drill efficiently.



Model 600:—First to run 2 heavy wagon drills or a big 9B 3 pile hammer efficiently. First "new standard" copied by the industry.

No other compressor, at any price, gives you these "air plus" features

- Balanced 2-stage, W-type compressor unit standard in every size from 75 to 600 ft. Cooler and smoother running than any V-type.
- 75% to 100% larger valves for free air flow, and up to 10 times longer valve life.
- Larger intercoolers and air receivers to cool and handle 15% to 25% more air.
- Relief valve for automatic drainage to insure drier, cleaner air, standard on all models.
- Positive lubrication by gear driven oil pump with flooded suction, standard on all models.
- Automatic "Fuel Miser" is standard on all Jaeger models where the automatic control of engine speeds effects worthwhile fuel savings.
- Bigger multiplate clutches than other compressors and bigger engines operating at conservative speeds.

For full details about compressors, tools and their air requirements ask your Jaeger distributor or send for Catalog IC-1.

THE JAEGER MACHINE COMPANY

800 Dublin Ave., Columbus 16, Ohio

AGGREGATE SPREADERS . CONCRETE SPREADERS AND FINISHERS . CONCRETE MIXERS . TRUCK MIXERS . PUMPS

ANOTHER WILD BLESSED EVENT



T 12
THE NEW
"POCKET THEODOLITE"

A "baby" for preliminary surveys, reconnaissance work, construction, leveling, location surveys.

Weighs only 7 lbs. including "thermos bottle" container and extension-leg tripod. Prism underneath telescope gives vertical range of 72°

TELESCOPE: Upright image, 5x magnification, field of view 8°

READING: Horizontal circle to 1', vertical to 2'

PRICE: \$315.00 incl. metal container and extension tripod with small plumb-bob

For details phone or write for 8kit CM4
Complete repair & servicing facilities by factory specialists.

HENRY VVILD
SURVEYING INSTRUMENTS SUPPLY CO.
OF AMERICA, INC.
MAIN & COVERT STS., PORT WASHINGTON, N. Y.
PORT Washington 7-4843



A NEW PROCESS, the DynArc, may represent a new era in the electrode field. It creates its own arc, requires no ground, does not have to be struck on metal and begins to arc as soon as current is turned on.

Self-Contained Arc

THE TORCH-LIKE ELECTRIC ARC ate its way, hissing and sputtering, through the block of granite. It sliced through an asbestoscement sheet almost as though it were cheese. It quickly bored holes in concrete, fire brick, clay tile and other ceramic, non-conductive materials. And it continued to function when held in the air far from any material at all.

What was it? It was Eutectic Welding Alloys Corp.'s new Dyn-Arc process—a self-contained electric arc that requires no ground, calls for only an ordinary welding machine in the way of equipment, and whose thermo-chemical interreaction of rod core and coating combines with the arc stream to produce a temperature of more (Continued on page 153)









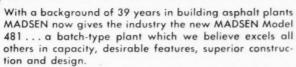
THE INTENSE HEAT generated by the new process enables it to pierce such materials as (1) concrete blocks, (2) Transite, (3) granite, and (4) water drain pipes, in less than 1 min.

2

BIGGEST NEWS! IN THE ASPHALT PAVING INDUSTRY

Announces! THE NEW MADSEN MODEL 481

Portable 4000-lb. BATCH CAPACITY ASPHALT PLANT



Right from the start, the advantages and flexibility of the MADSEN Model 481 are apparent. It is a portable plant, designed and engineered for faster and easier set-up. Incorporating the famous MADSEN Twin-Shaft Pug Mill Mixer and the patented MADSEN Pressure Injection system together with superior dryer and aggregate bin design, and many other outstanding features ... the MADSEN Model 481 gives you that high hourly production that puts more money in your pocket at the end of the job.

Batch-type asphalt plants meet the exacting requirements of today's specifications and the MADSEN Model 481 gives you more desirable features than any other plant of this type. Here are a few of the exclusive MADSEN features:

Sectional Mixer Liners . . . externally removable (patent NEW applied for).

Triple Discharge Bin Gates . . . withdraws material from NEW bin uniformly, prevents segregation, fills weigh-box in a level manner (patent applied for).

Roller-Mounted Weigh-Box . . . rolls out of the way for NEW mixer accessibility.

Portable Design . . . built-in gooseneck, fifth wheel plate, NEW king pin and rear axle mounting brackets.

8' 2" Wide ... legal width and height crane-erecting NEW box units

Mixer Operator Station on End of Plant . . . provides better view . . . cleaner, out of the way . . . away from fumes or heat.

Enclosed Gear Box Drive to Pug Mill V-belt from motor or engine to pulley on gear box with pinion to Pug Mill Mixer.

Before you buy any asphalt plant . . . Get the complete story on the new MADSEN Model 481. If your requirements call for a larger or smaller plant capacity MADSEN has a complete line to meet your needs.

AD/EN IRON WORK/, INC. P. O. BOX 589 . HUNTINGTON PARK, CALIF.

Individual Motors . . . on hot elevator, screen, pressure-NEW injection system pump, dust elevator, bin and screw.

All Air Cylinder Operation . . . on bin gates (4), weigh-NEW box, mixer and asphalt injection control valve. Electrically operated through solenoid 4-way air valves.

Improved Sampling Mechanism . . . for getting bin samples easier, quicker and more accurately

Three Sizes of Screens Optional . . . 42" x 12', 48" x 12' NEW double-deck, or 48" x 14" Symons 212-deck vibrating

Portable Hot Elevator . . . which may be hauled in piece as a trailer or broken down in sections

Press-broke Steel Columns and Legs ... for appearance and accessibility without interfa

Accent on Safety ... provided by impg platforms and railings for safer main



New International R-184 LOADSTAR with dump body. Features the entirely new 130 H.P. "Black Diamond 282" engine. GVW rating 21,500 lbs.

NEW INTERNATIONAL TRUCKS

BUILT as only M can build them

The 168 basic *New* International models embody the engineering principles, used in International's continuing program of truck research and development, that have resulted in hundreds of exclusive International features that have meant greater profits for truck buyers.

PROVED as only In can prove them

The 307 features in the *New* International Truck line have been *proved* in the world's most advanced Truck Engineering Laboratory; *proved again* at International Harvester's 4000-acre desert Proving Ground at Phoenix, Arizona.

VALUE only In can give you

The New International Trucks offer an unmatched combination of values—the right truck for the job,

unequalled performance, lowest maintenance and operating costs, maximum driver comfort.

Now—the features you want in America's most complete truck line

New International styling identified by the IH emblem . . . Exactly the right power for every job. First truck builder to offer choice of gasoline or LP gas with Underwriters' Laboratories listing in 1½-ton sizes and other models . . . Designed by drivers for drivers. Comfo-Vision cab with one-piece Sweepsight windshield. New comfort and interior styling . . . Steel-flex frames proved best in the field . . . Transmissions to meet any operating requirement . . . 296 Wheelbases ranging from 102 inches up . . . Easy starting and greater fuel economy . . . Wide range of axle ratios for all models . . . Real steering comfort and control . . . Sizes from ½-ton to 90,000 lbs. GVW rating Now—See The New IH-Built, IH-Proved International Trucks at your nearest International Dealer or Branch.

INTERNATIONAL HARVESTER COMPANY . CHICAGO



International Harvester Builds McCormick Farm Equipment and Farmall Tractors...Motor Trucks...Industrial Power...Refrigerators and Freezers

Better roads mean a better America

INTERNATIONAL TRUCKS
Standard of the Highway

ARC CUTS NON-CONDUCTORS

. . . Continued from p. 150

than 8,000 deg F. hard at work.

This intense heat lets the rod (DynaTrode) be pushed into and through the material to be pierced, and the molten rock flows out of the hole. In downholing, the force of the arc blows the molten material up and out. Penetration rate for a horizontal hole is 1 to 3 in. per min at a 400-amp setting, depending on the material. Minimum hole diameter is also governed by this: for example, it's about 1/2 in. in tile and 2 in. in granite with the diameter rod now available. Other rods are planned for different diameters. Boring of larger holes and cutting on a line, of course, are accomplished by moving the electrode. Present average cost? About 50c per in. of hole depth.

No special welding skill or welding machine is needed. Any arc developing better than 250 amp de will do, but greater amperage gives greater speed of cutting. However, the electrodes are the salient feature of the process.

Dumb-bell Rod

The DynaTrode is a dumb-bell shaped rod containing two parallel metallic cones surrounded by a heavy coating that both joins them together and insulates them from each other. In operation, the coating is consumed more slowly than the core. This forms a crucible, or tube of coating, through which the energy of the arc is projected and concentrated.

When the arc hits the material to be cut, it has contracted to a fine tip and its character has been changed by the disintegrating coating. It strikes the surface with an electrical and thermal equilibrium so balanced that the maximum concentration of heat is at the point of contact.

The arc looks far different from that of a conventional electrode. It shoots out 5 to 8 in. straight ahead, somewhat resembling a torch flame. But its 8,000-deg heat is lots higher than with the normal electric arc (6,000 deg) or oxyacetylene torch (5-6,000 deg). And the fact that the arc is self-contained, requiring no ground, means that the arc length is independent of its distance from the material.

The DynaTrodes are now made only in a 24-in. length, which lasts 50 to 55 sec under normal cutting or piercing conditions. Manufacturer is Eutectic Welding Alloys Corp., 172nd St. & Northern Blvd., Flushing 58, New York, N. Y.

NEW DRIVE-IT 320 with BREAK-OPEN ACTION



MAKES SPLIT-SECOND FASTENING TO CONCRETE EAGLED THAN ENED

OR STEEL... EASIER THAN EVER

BREAK-OPEN ACTION for fast, easy loading and extraction makes new **DRIVE-IT** "320" the easiest operating stud driver on the market. This smooth-working action means a greater saving to you on concrete or steel fastenings.

Here are other exclusive DRIVE-IT features that make it the best tool available:

ONE POWER LOAD. No need to buy and stock various strength power loads with exclusive DRIVE-IT power control method.

AUTOMATIC EXTENSION BARREL allows fastenings inside junction boxes and other recesses. No need to buy and attach extra barrels.

SWIVEL SAFETY PAD of tough rubber and steel protects operator and permits fastenings next to walls.

SAFE two-handed firing sequence and length of tool offer maximum protection. Can't be discharged accidentally or in mid-air.

DRIVE-IT pins are listed and approved by Underwriters' Laboratories.





DRIVE-IT
the original
POWDER ACTUATED TOOL

POWDER POWER TOO	U CORR
7526 C.S. W. Macadam	
	ee demonstration of DRIVE IT are on new DRIVE IT 320.
NAME	
ADDRESS.	
CITY	STATE



You prefer champagne because it's a sparkling, tangy drink . . . fit for kings . . . universally accepted as tops in beverages. Ready-Mix Operators prefer Smith-Mobiles because they too are tops in their field . . . the finest and most dependable truck mixers that money can buy. So why be satisfied with ordinary truck-mixers when you can get these top quality Smith-Mobiles at relatively low cost? Contact your nearby Smith Distributor. Ask for new bulletin.

THE T. L. SMITH COMPANY

2851 North 32nd Street • Milwaukee 45, Wisconsin, U. S. A.

Affiliated with ESSICK MANUFACTURING CO., Los Angeles, Calif.

CONCRETE MIXERS

For BIGGER and BETTER Concrete Mixers and Truck Mixers . . . LOOK TO SMITH



7,000 fasteners set in concrete in 3,500 minutes Saved \$15,000 on 50,000 fastenings into steel Fastener cost reduced from \$2.53 to 24 cents Cut fastening time from 9 minutes to 58 seconds Lowered fastening cost 87%; reduced time 90%

Split-second fastening into steel or concrete with super-speed Ramset Johnaster



Always use Tru-Set Fasteners

Exclusive Red-Tip Pilot guides them straight to the work, with highest efficiency in performance. Four types in 56 sizes for split-second fastening into steel or concrete.



Names of these RAMSET users and others in your locality available on request. Just as thousands of users have been saving for six years, you can slash cost and time of fastening into steel or concrete with RAMSET SYSTEM, pioneer in powder-actuated fastening.

Let us prove, on your own work, how the ten big features of the new RAMSET JOBMASTER add up to new speed, new economy, new ease, new utility. See the lightning-fast action—one-hand operation—accuracy of positioning—straight, firm penetration which only the JOBMASTER gives you.

Ask your dealer to do a sample job for you, and prove the dollarsand-cents value of doing every fastening job with RAMSET.



12117 BEREA ROAD

CLEVELAND 11, OHIO

Sensationally New! CARVER'S

The Lightest A.G.C. Weighs on the Marker Rated Weighs on the Marker Rated Speaks Pounds

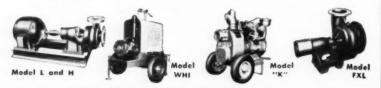
Tops in Performance and Real Fully Meet A.G.C. Model 4M

Durable and Dependable Construction. Backed by CARVER'S struction. Backed by CARVER'S Struction 2 HP. Engine

Price Straton 2 HP. Engine

Price Speaks Only \$125.00

Advanced design and engineering skill puts CARVER far ahead of the field. Simple, compact (17" x 15" x 15") and so light one man can carry it with ease over any kind of terrain. Prime it only ence—self-priming thereafter. And economical to operate too—will deliver over 30,000 gallons of water per each gallon of fuel. Self-cleaning, trash-free, open-type impeller. Trouble-free greaseless shaft seal that has been proven and reproven in the field. And many other features too numerous to mention here. Send for Bulletin No. 152. Made for electric motor and belt drive operation also. Whatever your pumping problem, see your CARVER distributor today.



CARVER PUMP COMPANY, 1402 Hershey Ave., Muscatine, Iowa



CARVER PUMPS



C. P. Street New President Of AGC

C. P. STREET, building contractor, secretary and general manager of McDevitt & Street Co., of Charlotte, N. C., was elected president of The Associated General Contractors of America at the 34th annual convention held in Miami, March 23-26. Mr. Street has been active in the AGC for a number of years.

John MacLeod, well known in the construction industry, heading his own firm in Paramount, Calif., was elected vice-president.

Elected by mail ballot were 18 directors who were chosen to help guide plans for some 6,200 members who each year perform more than 80% of the nation's contract construction work.

Highlighted at the four-day convention was the encouraging news gathered from an AGC survey that a period of abundant work lies ahead in the construction field for 1953. Removal of government controls, availability of materials, intense competition, sharp bidding and lower prices for completed construction jobs, tend to support an earlier forecast that a new peak of a \$44 billion industry for 1953 will be reached.

According to H. E. Foreman, managing director of the AGC, in the opening day address, general contractors have set their sights on a program this year that will benefit the entire construction industry.

Power-Packed 100% Hydraulic Performance







Large photo shows position of bucket when at extreme height above ground. Two small photos illustrate how, in excavation or loading, bucket follows slope of material—getting a full bucket with every stroke. Dempster-Diggster digs-in 15 inches below week and discounts 15 to 19 toot back The Dempster-Diggster is the only small shovel that offers you all these basic and important features of big shovels—Simultaneous and Independent Crowd and Hoist . . . Hydraulic Crowding . . . Hydraulic Hoisting . . . Variable Crowd Action at any Dipper Position . . . Changeable Buckets.

With these big shovel features, plus truck speeds on the job, and to and from jobs, the Dempster-Diggster enables you to speed up production for greater profits on jobs requiring excavation or loading!

Write for complete facts on this revolutionary, power-packed shovel. A product of Dempster Brothers, Inc.

DEMPSTER BROTHERS

343 Shea Building, Knoxville 17, Tennessee



GRACE Asphalt and Compaction Equipment



3 sweeper models, axle, engine or tractor powered.



Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.



Rapid Fire circulating heaters heat and unload large tanks of asphalt.



Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.



Sheepsfoot Rollers 250 to 600 psi.



Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.

6100 S. Lamar

Dallas, Texas

Get Your Safety Directory

FUNNY SCENES and comic mice, or serious thoughts and sound advice. The foregoing is a direct quote from an announcement by the National Safety Council telling us about its 1953 Directory of Occupational Safety Posters containing 756 miniature illustrations of many of the Council's colorful posters.

The Council sent us a copy of the Directory, too, and we were so taken by its pages and pages of interesting contents that we spent a lot of time in a busy day to look all the way through it. And you will do the same when you see a copy.

It is stuffed from cover to cover with samples of posters available, many of them in four colors. Both serious and humorous approaches are used, and there are posters for specific industries, as well as a wide selection of general topics useful to most industrial fields. In designing posters, the Council applies information gathered from latest occupational accident statistics so that emphasis can be placed upon the weakest spots.

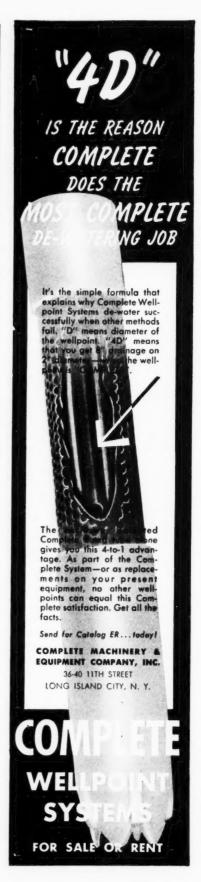
The Directory is complete in that it contains hints to safety men on how to choose and display posters effectively. A good index indicates where to locate all posters on a particular subject, and a price list makes it convenient to place orders.

For your copy, and more information on safety posters made up specifically for construction workers, write to Membership Service, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

Unit First Aid Kits—This is the title of a new data sheet by the National Safety Council which is a helpful guide to better first aid for contractors with scattered operations.

Unit kits described have treatment and dressings packaged for one-time use, are ideal for crews on mobile equipment or groups working in isolated areas. Kits remain sanitary during periods of infrequent use because there are no half-empty bottles or half-used rolls of gauze to become contaminated.

There are burn spray kits and other assortments included on a chart giving recommendations for some 25 occupations. Ask the Council for Data Sheet D-202.





you've got to

Swing that Rear-End

for TOP performance

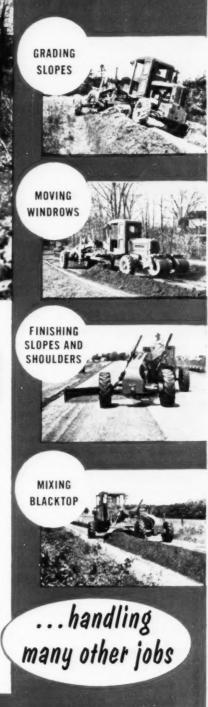
Top performance, no matter what the footing . . . no matter what the job.

When a ditch is wet, rear steer places the rear truck on the shoulder where the going is good.

When the load is heavy, rear steer places the rear drivers so that they push behind the toe of the blade, while the front drivers pull ahead of the heel. More material is moved, farther and faster.

When there's finishing to be done, rear steer moves the rear wheels off to the side where they won't leave tire marks.

Yes, on job after job, right straight through the year, you've got to SWING THAT REAR-END to get maximum results, and only an Austin-Western Power Grader can swing its rear-end.



ustin-Weste

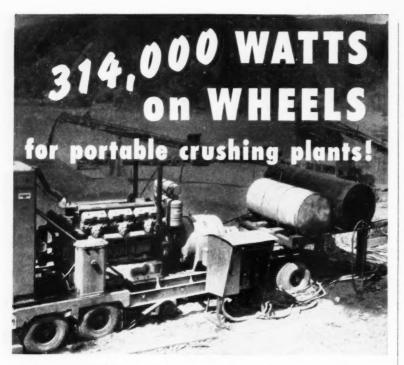
Power Graders Road Rollers - Motor Sweepers Construction Equipment Division



Manufactured by

AUSTIN-WESTERN COMPANY ary of Baldwin Lima-Hamilton Corporation

AURORA, ILLINOIS, U.S.A.



J. N. CONLEY, well-known Portland, Ore., contractor has cut operating costs by driving his crushing plants with thrifty electric motors, powered by a giant, trailer-mounted diesel generator. Conley's heavy-duty LaCrosse Low Bed Trailer gives his 314,000 watt generating plant easy mobility — permits moving power unit completely out of range of abrasive dirt and dust from crushers. Trailer rolls from job-to-job in minimum lost-time . . . eliminates cost of building permanent foundations. Compactly arranged on the

trailer deck are: 314-KW, generator, 500-HP. diesel engine, complete panel control board, and an 86-gal.-capacity radiator for engine cooling. A gas engine compressor with two 15cu.-ft. air tanks supply air for starting the motor. Why not find out the advantages you can gain by mechanizing your operations with job-proved La-Crosse Trailers. Choice of 85 low-cost production models from 6 to 67 tons capacity flat, drop or tilting platforms. Also custom-built models for special needs. Write TODAY!

	ILER CORPORATION, LaCrosse, Wis
Rush complete information	
Send name of nearest L	☐ Prices ☐ Delivery .aCrosse Distributor.
☐ We may buy a ton	trailer about(date)
Name	Title
Employed by	*************************
Address	
City	State
/ B/ - N B7	ジントプープープ

* SERVICE *

News of manufacturers' activities designed to assist the reader in the purchase of machinery, equipment and materials and help him obtain quick service on parts and maintenance.

Distributor Appointments

Cleco Div., Reed Roller Bit Co.: The following distributors have been appointed to handle Cleco products in their areas-Maintenance Services Co., 112 Academy St., South Orange, N. J.; Detroit Supply Co., Inc., 113 S. Brandywine Ave., Schenectady, N. Y.; Sears and Bowers, 411 Spring Garden St., Easton, Pa.; General Equipment and Machine Co., 511 E. Colfax Ave., South Bend 17, Ind.; A and I Supply Co., 614-616 Virginia St., W., Charleston, W. Va.; Lyons Machinery Co., 904 Broadway, Little Rock, Ark.; and Equitable Equipment Co., Inc., 410 Camp St., New Orleans

Viber Co.: Announces the appointment of Lee Redman Equipment Co., Phoenix, Ariz., as distributor for the complete line of Viber internal and external vibrators.

Koehring Co.: Three new distributors have been named. Kelbe Bros. Equipment Co., 5686 N. Teutonia Ave., Milwaukee, will handle Koehring products for the entire territory, including equipment manufactured by three subsidiary companies—Parsons Co., C. S. Johnson Co. and Kwik-Mix Co. Allied Equipment, Inc., 825 N.W. 72 St., Miami, has been named to handle Koehring and Parsons products in the 13 southern counties of Florida. The northern California territory will be handled by Standard Machinery Co., 450 Bayshore Blvd., San Francisco.

Motorola, Inc.: The appointment of Equipos Electronicos de Mexico, S. A. Luis G. Cuevas Medina, general manager, as a co-distributor of Motorola communications products in Mexico was announced recently.

Alloy Rods Co.: Three new distributors have been named—Cohoes Welding Works, 157 Saratoga St., Cohoes, N. Y.; Lincoln Welding Supply Co., 330 S. 10th St., Lincoln, Neb; and Sommerfield Welding Supply Co., Inc., 56 Light St., Oshkosh, Wis.

Sisalkraft Co.: Thompson Materials Corp., 303 Cortlandt St., Belleville, N. J., has been appointed distributor in New York and New Jersey for

(Continued on page 163)

MODEL 450 REMINGTON STUD DRIVER

-the ONLY powder-actuated fastening tool with ALL these advantages—

The Model 450 Remington Stud Driver sets up to 5 fastening studs per minute—a speed unmatched by other powder-actuated tools. Completely self-powered, this amazing tool fastens steel or wood structural pieces to concrete or steel surfaces in seconds. Its light weight—only $5\frac{1}{2}$ pounds—makes it ideal for use overhead or in confined spaces. Check these other exclusive Remington Stud Driver features:

NO ACCESSORIES REQUIRED. No separate parts needed to control power, none required for loading—nothing to lose or break. Just a twist of the wrist opens the Model 450. Insert stud and power cartridge as a unit...close and you're ready! Whole job takes seconds.

DOUBLE-SAFE—REQUIRES BOTH HANDS FOR OPERATION. A separate safety lever must be depressed and held that way with one hand before and during squeezing of the trigger with the other hand. Safe, two-handed operation holds the tool steady. Two additional safety devices prevent operation except in proper fastening position.

MAXIMUM POWER RANGE. You get a wide choice of power in Remington cartridges. They're available in six different loads, each clearly marked by colored heel caps. The 32 caliber carridge gives you extra power in this medium-duty tool...helps you speed all types of fastening jobs.

ARROW-STRAIGHT DRIVING— PERFECT GAS SEAL. Long heel cap on all Remington cartridges provides perfect gas seal... gives the Model 450 more power. Assures controlled, consistently straight driving.

FAST, POSITIVE EJECTION. Exclusive ejector snaps fired case out of tool instantly—no fumbling, no tools needed.

Test-proved to be the world's finest and speediest fastening system, the Model 450 Remington Stud Driver is made by Remington Arms Company, Inc., America's oldest sporting arms manufacturer.

NEW, FREE BOOKLET shows you a hundred different ways the Model 450 Remington Stud Driver can speed your construction fastening. Packed with illustrations, it tells you where and how this tool can save time, reduce fatigue and cut costs. Send in the coupon below for your copy.



Listed & Approved by Underwriters' Laboratories, Inc.
"If It's Remington—It's Right!"







- MAIL	THIS	COUPON	TODAY -
--------	------	--------	---------

Industrial Sales Division, Dept. CME-4 Remington Arms Company, Inc. 939 Barnum Ave., Bridgeport 2, Connecticut

Please send me my free copy of the new booklet showing how I can cut my fastening costs.

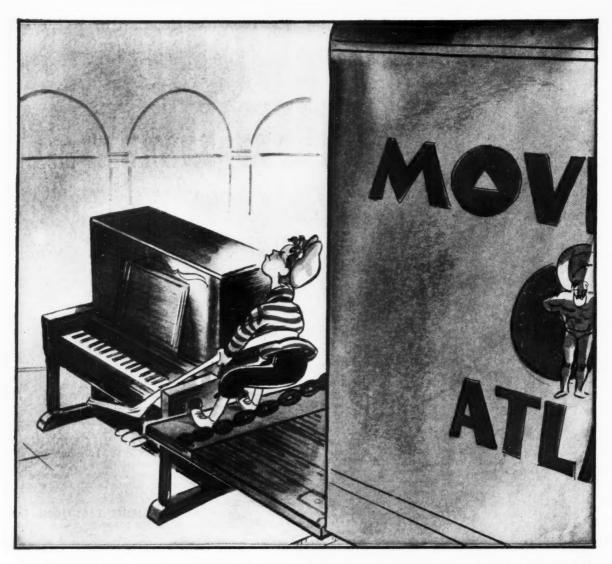
Name

Positi

Firm.

Address City

State



Don't send a boy to do a man's job!

You can't budge it, my boy, no matter how hard you pull! It's a man-sized job! And lubricating trucks and buses is another job that separates the men from the boys . . . in motor oils. Long hard runs, heavy loads, terrific temperatures demand man-sized Phillips 66 Heavy Duty Motor Oil every time.

This tough oil is made from highquality crudes, specially processed by "cold fractionation" to retain their exceptional lubricating "goodness." No deterioration from overheating.

Specially tested additives disperse sludge and carbon, guard against corrosion, foaming, and acid action. Find out why man-sized Phillips 66 Heavy Duty Motor Oil is the choice of so many owners and operators of truck and bus fleets. Ask to have a Phillips lubrication engineer call on you. Write to Phillips Petroleum Company, Bartlesville, Okla.

Oil for the Engines of Commerce-



PHILLIPS 66 HEAVY DUTY MOTOR OIL

SALES AND SERVICE ...

Continued from page 160

Sisalkraft paper products for road construction work

W. A. Riddell Corp.: Matcha Machinery Co., Budd Lake, N. J. has been named distributor of WARCO road graders and Hercules road rollers

On the Sales Front

R. G. LeTourneau, Inc.: J. A. Vincent. Atlanta, Ga., has been named eastern sales manager with headquarters in Peoria, Ill.

Thor Power Tool Co.: A new Thor sales and service office has been opened in Mexico, D. F., Mexico. The new company, Thor Tools of Mexico, Inc., Basilio Badillo No. 47, will be under the direction of C. L. Rowett, Thor representative in Mexico.

Tempo Products Co.: Has been appointed national sales distributor for 'Super Slugger" electric hammers and the complete line of "Super Slugger" tools. Noble & Stanton, Inc., Bedford, Ohio, who introduced the line several years ago, will continue to manufacture the hammer and tools, but all sales will be through Tempo, with Robert R. Elliott as sales manager.

Wellman Engineering Co.: Fred B. Shew has been named sales manager of the Bucket Dept. and will supervise the national distribution of the company's line of "Williams" clamshell and dragline buckets, log and stone grabs.

Republic Rubber Div., Lee Rubber & Tire Corp.: The formation of a new Southwest District of the company has been announced. W. T. Willey, formerly field representative in Houston, has been appointed district manager with headquarters in Tulsa, Okla. Other members of the new district sales organization are R. J. Cravens who will headquarter in Dallas, D. L. Cushing in Houston and R. E. McQuiston in Midland, Tex.

Rockwell Mfg. Co.: Has announced the appointment of E. W. Ristau as vice-president in charge of sales. Power Tool Div. Mr. Ristau was formerly director of sales and advertising of the Delta Power Tool Div. He will be located in Pittsburgh.

Timber Structures, Inc.: Establishment of a Carolina district office in Charlotte, N. C., headed by Raymond B. Wheatley, Jr., as district manager, has been announced

Electric Steel Foundry Co.: Announces the opening of a new branch



"MISSING LINKS"

MATCHED

Made with special dies so that. each half is pressure fitted. This eliminates play between the forgings, insures perfect fit when riveted into chain. There is no strain on the rivets.

INTERLOCKING LUGS

More costly to put in the dies, but they grip firmer and really do the work of taking the load.

ORDINARY LINKS

UNMATCHED

When loose fitting links are put into a chain and the load is applied, the rivets take most of the strain and tend to shear until the links set. This may later cause the link to open up under heavy load.

ROUND LUGS

Ordinary round lugs fitting into round holes don't have the holding power, tend to shear or force out under strain.

Laughlin "Missing Links" are made of carefully heat treated, high grade steel. They have features found in no other repair links, and are also supplied in an exclusive pear shaped design in sizes for 3/8" to 11/8" chain.

Buy From Your Local Distributor

He is in business to give you prompt, courteous service and to save you money, time and trouble. He's your one best source for industrial supplies.

FOR SAFETY'S SAKE

SAY

THE THOMAS LAUGHLIN CO.

414 Fore St., Portland, Me.



4-Cycle Air-Cooled

KOHLER ENGINES



Power for garden tractors, mowers, pumps, sprayers, snow removal equipment, elevators and hoists, portable saws, concrete mixers, compressors, grinders, industrial and lift trucks, and a wide range of tools and equipment for industry, construction, farm and home.

Engineered and built to the quality standards that have won acceptance for Kohler Electric Plants the world over.

Write for information on distributor's sales franchise.

Kohler Co , Kohler, Wisconsin. Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES . HEATING EQUIPMENT . ELECTRIC PLANTS
AIR-COOLED ENGINES . PRECISION CONTROLS

Between job MAGIC CARPET
for
slow travelers
MILLER
Model "B"
Tilt-Top!

Time saved between jobs means more profit on every job. One man can load heavy units in less than two minutes. Operator drives unit on platform—it tilts, locks . . . and he's on his way with no lost motion. You'll find MILLER Tilt-Top the extra trailer for extra production.

MILLER Tilt-Top saves even more time than other more cumbersome trailers with its better maneuverability, and easier backing. Best of all, MILLER'S exclusive mass production of Tilt-Top trailers cuts original cost for you. Get this extra help . . . extra production now — see your MILLER dealer today!

handier easy-to-back priced right

Model "B" 10 ton \$1175
Optional equipment (priced extra)
16' long platform (8'x14' standard),
hydraulic tilt control, 2 speed
hand winch and electric brakes.



Dept. C-4, 457 So. 92nd Street, Milwaukee 14, Wis.

SALES AND SERVICE ... Continued

office in Salt Lake City. Garland T. Allen, who has been representing ESCO in the Portland area for 11 yr, is manager of sales in the new office.

Air Reduction Sales Co.: A. C. Brown, Jr., regional manager of the company, has been appointed general sales manager with headquarters at 60 E. 42nd St., New York, N. Y. J. H. Keeney, administrative assistant in Pittsburgh, succeeds Mr. Brown as regional manager; J. H. Hart becomes administrative assistant, Pittsburgh; R. A. Jamieson, Detroit district manager.

The Frank G. Hough Co.: Announces the appointment of G. A. Tamblyn, former assistant sales manager, as sales manager.

The Warner & Swasey Co.: William C. Worthington has been appointed district representative of the Gradall Division for the Southeast region. He will make his headquarters at 1709 Chandler Bldg., Atlanta 3, Ga.

W. A. Riddell Corp.: Has named Stephen L. Ferriol as sales representative in the Northeastern states with headquarters in Westfield, N. J.

Westinghouse Electric Corp.: Has announced the establishing of an Atlanta branch office. Thomas Fuller, Jr., was appointed branch manager and M. A. Land sales supervisor.

Detroit Diesel Engine Div., General Motors Corp.: Ernest F. Bentley has been appointed general sales manager; Robert V. Baxley, operations sales manager; John C. Campbell, manager of manufacturers' sales; and Louis A. Steele, industrial sales manager.

The Galion Iron Works & Mfg. Co.: Joseph H. King has been appointed central Ohio sales representative of Galion motor graders and rollers. His territory includes the counties of Franklin, Fairfield, Madison, Fayette, Morgan, Perry, Licking and Pickaway—formerly handled by Lewis C. Lobb who has retired. Mr. King will be located in Galion, Ohio.

Hyster Co.: Appointment of James Oliver as district manager in the Pacific Northwest has been announced. His territory will include Washington, Oregon, Idaho, part of northern California, western Canada and Alaska.

Mack Motor Truck Corp.: K. L. Fitts has been appointed manager of off-highway truck sales succeeding P. J. Fleming who recently retired. Mr. Fitts will make his headquarters in

(Continued on page 166)

Progress in Motor Grader Design

Allis-Chalmers new AD-40 shows importance of visibility. Operator can see front wheels — both ends of blade while he works.

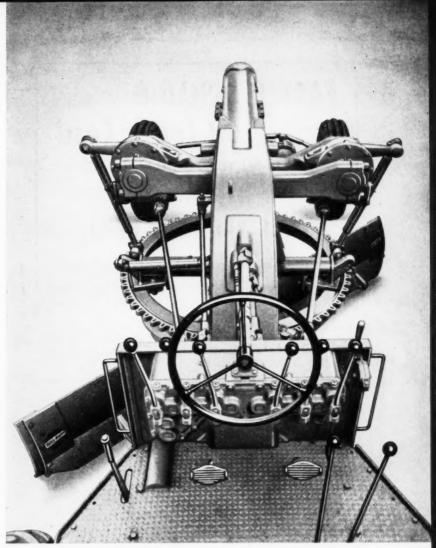
MOTOR grader operator has to be able to *see* his work to do a good job, whether he's rolling big windrows or doing highly accurate finishing.

Here is how Allis-Chalmers engineers made sure the new AD-40 met these requirements. They carried A-C's single member frame all the way from the front axle to the platform; cut down the size of the lift cases to eliminate blind spots; lowered the control box and eliminated assemblies from the front panel to provide better visibility of the work area directly in front of the operator; tapered the front edges of the platform so that he could see both ends of the moldboard as he works.

A-C fieldmen also knew that a grader operator likes to sit down whenever the job permits. So they've not only given him ample leg room for stand-up operation but also a steering wheel of adjustable height and a seat that rolls forward at a touch for sit-down operation.

Combined with a new kind of power steering, these advanced design features are making Allis-Chalmers AD-40 an increasing favorite with operators and owners alike because it means more work done with less effort. For more facts on the AD-40, it will pay you to see your nearby Allis-Chalmers dealer

ALLIS-CHALMERS



(above) Here is actual view operator has from platform of Allis-Chalmers AD-40, showing how well he can see both ends of the blade and both front wheels.

(below) The AD-40 has 104 brake horsepower, 23,000 pounds of weight and tandem drive traction, all it needs to do a better job on heavy duty construction . . . a faster job on maintenance.



FASTER DRILLING at Lower Cost!

MODEL 51 SELF PROPELLED

HYDRAULIC COAL AND CLAY DRILL

- 4 features for easy operation and top performance
- · Hydraulic Feed
- Fluid Motor for Auger Rotation
- · Finger-tip Controlled
- One-man Operation



NEW: The Model 51 Drill is equipped with automatic Drill-Cuttings Shield and Guide. Now blast holes are kept absolutely clean from cuttings. A dam is formed about blast hole, excluding casual surface water.

PARMANCO units, is the excellence of construction. The transmission is heavy duty truck type with four speeds forward and one speed reverse. The main frame is of all welded I-beam construction. The rear end is truck type with hydraulic brakes.

This Coal and Clay Drill has been designed around a 40 h. p. engine. It will drill 2½ inch holes at a speed up to 7 feet per minute in No. 5 coal. Another Parmanco engineering feature is the ability of this drill to handle 4½ inch augers up to 25 feet in depth.

PARIS MANUFACTURING CO., Paris, Ill.

SALES AND SERVICE ...

Continued from page 164

the home offices, Empire State Bldg., New York City.

Gar Wood Industries, Inc.: Has named H. J. (Herb) Howerth, Jr. assistant sales manager of the Wayne Division.

Lincoln Engineering Co.: Has appointed Albert J. Gruenewald sales manager of its Industrial Division, replacing T. V. Picraux who has been made production manager of both the company's plants.

DeWalt, Inc.: Thomas E. Berry has been named district manager of the New York territory. John Stolarz has joined the company as industrial sales manager.

Allis-Chalmers Mfg. Co.: Myron W. Rhoten has been named territory sales manager for the European area, Tractor Division, succeeding George A. Gillespie, recently appointed resident manager of the company's Paris office. Clyde Crozier succeeds Rhoten as export service manager of the company's home office. Walter A. Hebeler has been appointed to the newly created position of export sales manager, Tractor Division.

In the Main Office

Chain Belt Co.: F. Dier Tincknell was elected treasurer of the company. He succeeds George M. Dyke who has retired.

Special Mention

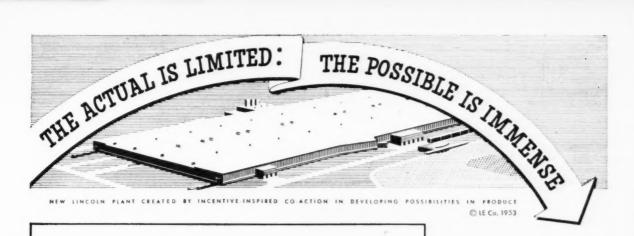
The A. O. Smith Corp: Announced the opening at Oakland, Calif. of a new service branch of its Product Service Division. The new branch is designed to provide a central West Coast location for efficient handling of replacement parts, service and repair and training operations. George A. Carlson has been designated as manager.

The Patent Scaffolding Co, Inc: A new office and warehouse has been opened at 2546 Lucena St., Charlotte, N. C., with Earl A. Taylor in charge.

The Flexicore Co, Inc: The new Michigan Flexicore Division of Price Brothers Co. at Livonia is in operation. William Cory has been named sales manager for the firm.

Whiteman Mfg Co.: Has just completed a new plant located at 3249 Casitas Ave., Los Angeles, Calif. The new structure provides manufacturing area of 54,000 sq ft. It has a moving assembly line for power buggies, a large, well-equipped machine shop, tool shop, welding shop, and testing

(Continued on page 170)



INCOLN WELDING SPEEDS BRIDGE REPAIRS

... helps maintain

Director of Transportation Shaker Heights Rapia Transit By Paul K. Jones,

Shaker Heights, Ohio

Rapid Transit schedules

Veakened cross braces were replaced in Double track right-of-way on Shaker Heights Rapid Transit System. minimum time with arc welding. Fig. 3.

Fig. 4. Lincoln 200 amp "Shield-Arc"▶ engine driven welder used for faster,

asser replacement of cross braces.

taking advantage of arc welding sible recently to save considerable time in the reinforcing of a bridge on the required removal of right-of-way in simplifying repairs, it was pos-Shaker Heights Rapid Transit right-ofened by rusting had to be replaced with heavier members of angle iron. As this be explored to eliminate delay in getting result in addition to eliminating rivets thus making the bridge easier to way. Cross braces that had been weakit was imperative that every effort the track replaced. Arc welding achieved to lower future maintenance costs. work track. paint

SIMPLIFIES **BRIDGE REPAIRS**

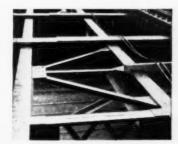


Fig. 1. Rusted-out Braces originally riveted to flanges of bridge girders are cut out quickly with torch

TS DOWNTIME



Fig. 2. Faster Construction. Angles sawed to length are fillet welded to web of girder with Lincoln "Fleetweld 5" type electrode.

SAVES MAINTENANCE

Studies in Structural Arc Welding free on request. Designers and engineers write on your

LINCOLN ELECTRIC COMPANY

CLEVELAND 17, OHIO

WORLD'S LARGEST MANUFACTURER OF WELDING EQUIPMENT



Gradall turns a limited operation into a profitable business!

GRADALL's advanced design, plus the foresight and determination of two contractors, has made a marginal slag pit operation at Dover, Ohio, a money-making business.

Farbizo Slag, Inc. was organized in 1948 to work a 38-acre slag pit which they had leased—land that had originally been a swamp. Most of the pit was already worked down within a few feet of the bottom, and these lower layers were compressed until they were nearly as hard as concrete. Attempts to expose a working edge by blasting only resulted in uncovering the old swamp, making it impossible to approach the exposed face of the

slag without crossing the swamp. Also, continued blasting and loading was not economical.

It was then they saw a Gradall in action—and the solution to making good on their investment. Parked on top the slag, the Gradall exerted its powerful down-pressure and bucket "wrist" action to cut back into the slag, efficiently removing it right down to the swamp.

Business prospered and within a few months Farbizo bought a second Gradall. Not only have the machines increased production, but they have also extended the life of the pit many years by making it possible to remove slag right down to the pit floor. This story is typical of how a Gradall's efficiency and many uses have "paid off" for its owner. Many smaller contractors have similarly been able to enlarge their operations—to take on larger, more profitable contracts with this multi-purpose machine. Larger contractors keep Gradalls busy on many and varied "clean-up" jobs formerly done only by hand labor. But let your nearest Gradall Distributor show you how a Gradall can build profits for you—contact him for a field demonstration.

Gradall Distributors in over 75 principal cities in the United States and Canada



YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS WITH WARNER & SWASEY MACHINE TOOLS, TEXTILE MACHINERY, CONSTRUCTION MACHINERY

5 WAYS THE

The 5 features below will be found only in the Lorain-50 "Series". They are important features because each one can add profit-dollars to your jobs. Whether your job calls for crawler or rubber-tires, you can fit the Lorain-50 to your needs... and be sure of getting the most value for your money. Let your nearby Thew-Lorain Distributor tell you why you get...

MORE FOR YOUR MONEY IN THE YEL CLASS!

1-YARD SHOVEL — 30-TON CRANE (on rubber)

There's more selection in the Lorain-50 "Series" of shovels-cranes. 7 different sizes and types of mountings to choose from ... 5 front ends available. All models embody exclusive Lorain-50 design and quality features for profitable performance and long life.

The only 1-yard class machine with Hydraulic Coupling as standard equipment. No shocks, no engine stall. Reduced wear and tear even on rock work . . . smoother, more accurate . . crane control.

AIR CONTROLS—EASIER OPERATION
Air does the work on the "50" crawler
machine. Full air control of crawler
steering and tread lock—air assist
available for hoist, crowd and retract
operations. Air steering standard on
all rubber-tire models.

The right crawler can improve performance. You can fit the "50" with a crawler to match exactly any ground or working condition. Select from standard, all-purpose, extra-long, and extra-wide crawlers.

A big 30-ton, 30 m.p.h. Moto-Crane for big lifts and high-speed mobility. Also, available as a 30-ton, single-engine Self-Propelled crane on rubber-4 travel speeds up to 7-1/2 m.p.h. in both directions.

THE THEW SHOVEL CO., LORAIN, OHIO

LORAÏN.



CLEANS TRACTOR-DOZERSHOVEL IN 2 HOURS WITH MALSBARY 300



5 Cleaning Actions, Plus Pressures To 400 Lbs., Blast Mud, Grease & Tars, Without Compound Changes

Previous cleaners took 6 hours to clean a TD9 tractor-dozershovel. Now Merrill-Brose Co., IHC dealer, Oakland, Calif., does the job in 2 hours with a MALSBARY 300 Heavy-duty Cleaner.

Here's why-

- **EXCLUSIVE PATENTED PUMPING SYSTEM replaces steam as source of working pressure** on MALSBARY high pressure Models 250, 300 and 500. Cleaning efficiency is not limited to steam formed in the coils.
- 5 DISTINCT CLEANING ACTIONS. High pressure steam cleaning (to 325°F.); high pressure hot water; high pressure cold water; low pressure wet steam; and low pressure warm water. Only MALSBARY offers you all 5.
- PRESSURES TO 400 LBS. This is 2 to 4 times higher than steam vapor cleaners; enables MALSBARY to do jobs other cleaners cannot touch, such as removing road tars without changing to special compounds. This high pressure permits simultaneous use of hot solution gun and cold water gun on Models 300 and 500.

All MALSBARY heavy-duty models-250, 300 and 500-develop hot solution in 2 to 3 minutes; are available with oil or gas-fired burner; gas engine or electric motor drive; stationary, portable or trailer mount.

See for yourself how MALSBARY Cleaners cut cleaning time-check coupon and mail TODAY.

For small shops.

MALSBARY 110 &

220 Steam Vapor

Cleaners provide quick, efficient

cleaning on motors, chassis, parts and

maintenance jobs. Simple, rugged,

gadget free.



Oakland 3, California 845 92nd Avenue ·

25 I AM INTERESTED IN-On-the-job demonstration. Free booklets on MALSBARY Cleaners. How To Make Efficient Use of Steam Cleaning" reprint. NAME BUSINESS ADDRESS

SALES AND SERVICE ...

Continued from page 166

department where every piece of equipment undergoes rugged, exacting tests before it is OK'd for shipment.

Le Roi Co.: John R. Gavigan, assistant treasurer, has been named chairman of the National Construction Machinery Credit Group.

Bridgeport Chain & Mfg. Co.: Announces that the name of the company has been changed to The Round Bridgeport Chain & Mfg. Co. The name change is in keeping with a policy to identify individual firms more closely as members of the Round Chain Companies, a group of 11 concerns from coast-to-coast.

Soil Testing Services, Inc.: Announcement has been made of the establishment of an associated firm. Soil Testing Services of Michigan, with offices and laboratory in Portland, Mich. The newly organized affiliate is headed by Robert Torp-Smith and, under his direction, will specialize in soil mechanics and foundation problems, and subsurface explorations in the Michigan area.

Henry Wild Surveying Instruments Supply Co.: Has announced the removal of its executive offices, sales department and repair facilities to its new and expanded quarters at Main and Covert Sts., Port Washington, N. Y. This transfer of location to its own modern, air conditioned building will afford better service in sales and enlarged repair facilities by its factory trained specialists.

Association Activities

American Concrete Institute: Henry L. Kennedy, manager, Cement Division, Dewey and Almy Chemical Co., Cambridge, Mass., was elected president of the Institute for 1953 at the annual convention in Boston, February 18. Charles S. Whitney, consulting engineer, Amman and Whitney, was elected for a 2-yr term as vice-president.

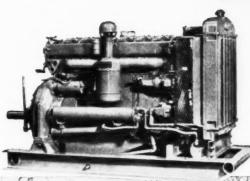
Timber Engineering Co.: A new book "Proceedings of Wood Symposium on 100 Years of Engineering Progress with Wood," published by this affiliate of the National Lumber Manufacturers Assn., traces the growth of engineered timber construction with emphasis on the home building field. The book is a compilation of outstanding papers presented at the wood symposium held during the Centennial of Engineering Convocation in Chicago last fall. Single copies are available, without charge, on request to Timber Engineering Co., Dept. WS-B, 1319 - 18th St., N.W., Washington 6, D. C.

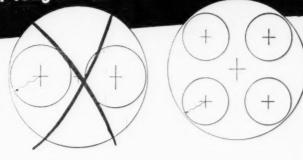
Heres

MURPHY DIESELS

put more power into your job

with longer life and less maintenance







Murphy Diesel rated at 100 H.P., continuous, powering a Diamond portable primary rock plant. MURPHY

Heavy duty power for construction

Murphy Diesel Engines and Power Units for construction, 90 to 226 H.P. Generator Sets, 60 to 140 K.W. THE power a diesel engine develops is dependent to a great degree on the breathing capacity of the valves. Breathing capacity of the valves in turn is determined by the circumference of the valves and their lift. Thus, when we compare Murphy Diesel's 4 valve design with the conventional 2 valve design of equal total valve area, simple arithmetic shows that total circumference of the 4 valve arrangement is 41.4% greater. With equal lift, the breathing capacity is also 41.4% greater.

At the same time, Murphy design provides 41.4% more metal-to-metal contact between the circumference of the valve and the seat for dissipation of valve heat. This, coupled with the smaller valve radius in 4 valve design (which means the heat has a shorter distance to travel to escape), explains why Murphy valves run cooler and rarely, if ever, have to be ground.

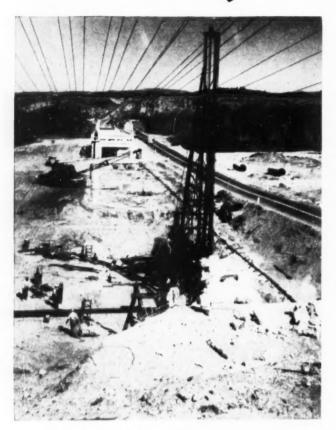
Four valves per cylinder is just one of the many reasons for Murphy's high standards of performance and economy. Others are given in the booklet "10 Questions to Ask a Diesel Engine Salesman". Get a copy from your Murphy Diesel Dealer or write direct.

MURPHY DIESEL COMPANY

5339 W. Burnham St. Milwaukee 14, Wisconsin Sales, Parts, Service in Principal Cities

226

100% PERFORMANCE ON ROUTE 1 BY USING Stang WELLPOINT SYSTEM



restle over the Santa Ynez River north of Lompoc, Calif. on Route 1 Calif. State Highway was washed out during recent floods, the normal heavy traffic being detoured (right of top Picture). Soil conditions encountered were medium to fine sand strata, fully saturated to natural grade. Removal of old piers and construction of a new bridge was required and needless to say "time was the essence of the contract".

The contractor Madonna Construction Co. of San Luis Obispo, Calif. dried the entire working area by surrounding it by a STANG Wellpoint System. Excavation for removal of old piers and for the new work was accomplished in DRY earth without the use of sheeting and bracing, resulting in LOWER COSTS—SHORTER TIME.

Note sequence of operations after dewatering —Piledriver follows excavating equipment with no time loss.

Removal of wrecked abutment and excavation for the new



JOHN W. STANG CORPORATION

Engineers and Manufacturers of Dewatering Equipment

BELL, CALIFORNIA 8221 Atlantic Avenue

P. O. Box 631 Telephone: Logan 5-7421

NEW YORK CITY, NEW YORK

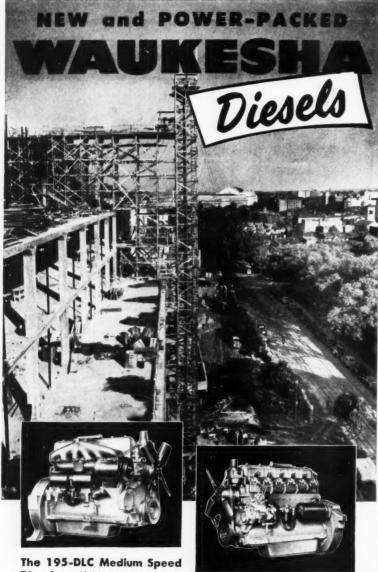
Number Two Broadway

Telephone: Whitehall 3-0565

TACOMA, WASHINGTON
2339 Lincoln Avenue
Telephone: Broadway 4362

OMAHA, NEBRASKA 2123 South 56th Street Telephone: Walnut 7796





The 195-DLC Medium Speed Diesel, manifold side, showing intake and up-exhaust manifolding; waste-packed lubricating oil filters; 12-volt pivot-mounted belt-driven generator; fuel supply pump; water pump by-pass, and foot-type flywheel housing.

GET BULLETIN 1624

A high-output high-speed Diesel, with counterbalanced crankshaft, 195-DLCA has a 98 hp max. @ 2800 rpm. The medium speed, with standard crankshaft, 195-DLC has a 96 hp max. @ 2400 rpm for momentary overload, 86 hp @ 2400 intermittent and 67 hp @ 2000 for continuous duty. Both models have aluminum pistons, six cylinders, 4-in. x 4-in., 302 cu. in. displ.

195-DLCA High Speed Diesel,

injection side, with pump mounted

governor and fuel supply pump,

fuel filter, water pump, single orifice

pintle-type nozzles, drawn steel

injection tubing of uniform length, 12-

volt starting motor, vibration damp-

ner, arm-type flywheel housing.

WAUKESHA MOTOR COMPANY, WAUKESHA, WIS.
New York • Tulsa • Los Angeles

How to Construct Terne Steel Roofs

ALMOST ONE YEAR AGO, beginning on page 127 of the May 1952 issue, Construction Methods and Equipment presented a step-by-step picture story telling how to put down a durable, leak-proof batten-seam terne steel roof.

Other methods and other types of seams can be employed. Here are presented the methods for standing seams and for flat locked seams. Follansbee Steel Corp., maker of Terne Metal Roofing, has prepared these simple instructions on the application of metal roofs from material supplied in convenient rolls. Illustrations are sketched from on-the-job photographs.

Standing-Seam Roof

Standing-seam patterns are used on more terne roofs than all other types combined. This probably is true because the seam is fabricated more easily and quickly, and, since standing seams are higher than the roof surface, they do not require soldering.



1. Roll of terne metal is opened on roof with painted side down. Roll is cut to proper length, and each of the long edges is turned up, making a flange of 1½ in. on one side and one of 1½ in. on the other.

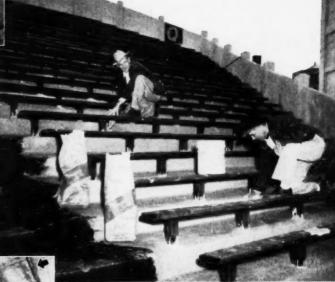


2. Strip is fastened to roof by cleats made of terne metal spaced (Continued on page 176)

THOROSEAL SCORES ANOTHER

HOME RUN
at the
Braves Field

General contractor and technical supervisor of Standard Dry Wall Products, Inc., plan correction of an extreme condition existing in bleacher seats at Braves Field, Boston, Massachusetts.



Above photograph shows THOROSEAL FOUNDATION COATING being grouted into upper, or wearing, surface of bleacher seats.

Right photograph shows soffits of concrete seats where concrete has blistered away from reinforcing rods. Rods were sand-blasted and sealed with THORITE Patching Mortar and entire undersurface sealed with THOROSEAL.

General contractor, Henry Gironi, Allston, Massachusetts, an expert, with long experience in masonry maintenance, rehabilitation and surface protection, performs correction task on Braves Field, with satisfaction to all concerned. Waterproofing Products, Inc., Allston, Massachusetts, furnished the materials.

THORITE Patching Mortar was used for sealing rods and patching cracks and blisters in concrete. THOROSEAL FOUNDATION COATING was used for grouting wearing surfaces.

Standard Dry



PENNSYLVANIA EAGLE,

HOW TO DO IT.

20-PAGE BRO-CHURE, with design

guide. Pictorially described, in detail



The job of hauling this 32ton Electric Precipitator from Cressona, Pa., to Pottsville, Pa., was taken in easy stride by the Moore-Flesher Hauling Co., Pittsburgh, Pa., with their specialized knowledge and their rugged Rogers Trailer.

Hauling "Plus" Payloads without overloading is not only a possibility, but a relatively common practice by enterprising hauling contractors who rely upon the sturdy backbones of their Rogers Trailers to withstand heavy, bulky loads under strenuous operating conditions.

It's just one of the many reasons why

This is the Sign of the Original

Genuine



Rogers has been privileged to serve a larger number of "repeat order" customers since the year of 1915 when the first trailer was built.

We'll be glad to discuss your particular handling problem in terms of trailers that will best suit your needs and your pocketbook. Call, write or wire your agent TODAY.

This nameplate appears on every ROGERS TRAILER as your assurance of the **GENUINE PRODUCT—Made Since 1915**

for the LATEST CATALOG



220 Orchard Street



Also of timely interest is this ROGERS Tag-A-Long trailer which makes a dump truck serve as a tractor and effects sizeable savings for contractors.

STEEL ROOFS ...

Continued from p. 174

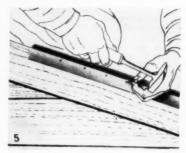
8 to 12 in. on the 114-in, flange and nailed to roof. Ends of cleats should be long enough to allow them to be bent back over nail heads, protecting both cleats and roofing strips from being punctured. (Fig. 1, p. 174)



3. Second strip is laid alongside first, with its 11/2-in, flange adjacent to cleated-down 11/4-in. flange of first strip. Its opposite edge-the 11/4-in. flange-is cleated to the roof.



4. Using a foot seamer, roofer forms first lock by bending top quarter-inch of the 11/2-in. flange over adjacent flange, first to a right angle and then to a full 180 deg. Same process is repeated with single-locked seam thus created, making a double-locked seam, so that there are five thicknesses of metal. (Fig. 2, p. 174)



5. Each standing seam is cut off flush with roof edge and finished simply by bending upper corner inward over rolled side to form a (Continued on page 178)



these counties are moving the cheapest dirt on earth!

Domor Elevating Graders with Caterpillar Motor
Graders are building low-cost roads for counties and contractors all over the world.
One machine with one operator digs, conveys and places the material.

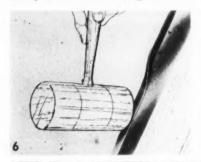
The story on Domor Elevating Graders is this simple—figure the yardage possibilities out for yourself. The disk cuts 22 inche deep—16 inches wide—and travel speed in second gear is approximately 3 miles per hour.



Ulrich Products CORPORATION



45-deg flap. Roofing strip itself is trimmed ½ in. beyond gutter edge, and excess stock is pressed into place with hand tongs to form



a single locked seam with the gutter. (Fig. 3, p. 176)

- 6. At ridge comb, standing seam is malleted against the roof so that the rolled side is down. Strip is trimmed 1¼ in. beyond ridge comb, and projecting 1¼ in. is bent back enough to allow excess stock from strips of opposite roof slope to project over ridge comb. (Fig. 4, p. 176)
- 7. Opposite roof slope is covered in same manner, except that its seams should be staggered with those of first slope.

8. Strips of second slope should be trimmed 1½ in, beyond ridge comb. This 1½-in, flange is bent over the 1¼-in, flange to form a double-locked seam, in the same manner as the vertical seams. (See No. 4, p. 176)

9. Drip-edge strips are nailed along gable edge. (Fig. 5). These strips are fashioned by taking 2-in. wide lengths of terne metal and bending them lengthwise so that they form right angles with legs 34 and 114 in. wide. Wider leg is nailed to roof edge.

10. Overhanging edge of roofing strip, which has been trimmed so that it will extend ¾ in. beyond the ¾-in. leg of the strip, is turned down and around the drip-edge strip, after which the three thicknesses of metal are bent down to the roof edge with hand tongs and malleted down to cover and protect nails fastening drip-edge strip. (Fig. 6)

Flat Locked-Seam Roof

Flat locked seams are particularly useful for flat or low-pitched roofs and have found favor on many industrial structures, as well as on homes.



1. Flanges are bent upward to 90 deg on the long edges of the initial strip—½ in. high on one edge and 1 in, high on the opposite edge. Continuous strips up to 50 ft long can be used without cross-seams.



2. The initial strip is laid on the roof and attached by cleats hooked on the ½-in. flange of the initial strip, each cleat being fastened to the roof deck with two nails side by side on the width of each cleat.

(Continued on page 180)



take a good look at the gears



They Ease You Through the Tough Ones

S-N

REDUCTION GEARS

You'll find the world famous S-N heavy duty herringbone Reduction Gears wherever heavy duty equipment is on a continuous, grueling assignment. They are ruggedly designed for efficient, around-the-clock operation with all types of engines from 40 H.P. units right on up to the 775 H.P. giants! This means heavy duty equipment like cranes, pumps, locomotives, shovels, generators, draglines, compressors and all types of dredging and ditching equipment.

S-N herringbone Reduction Gears are especially designed to transmit full power from engine to load smoothly—at the most economical speed for the driven equipment. Rugged—compact—and versatile—S-N heavy duty herringbone Reduction Gears deliver more power per gallon of fuel than any other method of speed reduction. Standard ratios available in 1.5:1, 2:1, 2.5:1, and 3:1 in both anti-engine and engine rotation. Special ratios available in some models up to 4.7:1. S-N engineers will gladly assist you in specifying the best unit for maximum performance on your equipment.







SNOW-NABSTEDT

Thansmission Engineers

THE SNOW-NABSTEDT GEAR CORP., HAMDEN, CONN.



more <u>usable</u> aggregate from every ton of rock

TRAYLOR'S **CURVED CRUSHING SURFACES**

reduce waste fines to cut aggregate costs.

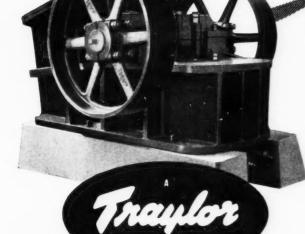
Traylor Jaw Crushers are equipped with Curved Jaw Plates. These plates are designed to apply crushing force in a direct line! This drastically reduces the churning and lifting of material in the crushing chamber. Each zone in the crushing chamber is of increasing capacity. As material is crushed it is free to drop immediately toward the discharge opening.



PROGRESSIVE CONTRACTORS who are producing their own aggregate on the job, will find in any Traylor Jaw Crusher the means to further reduce costs. Traylor curved crushing surfaces have two major effects upon aggregate costs. Not only do they produce more usable aggregate, but they reduce power costs on every ton of material reduced.

Bulletin 4105 gives complete information on Traylor Type H and HB Crushers. Mail coupon for your copy today and see how to get maximum savings on job produced aggregate.

I'm interested in better aggregate at less cost. Send



TRAYLOR ENGINEERING & MFG. CO. 557 MILL ST., ALLENTOWN, PA.

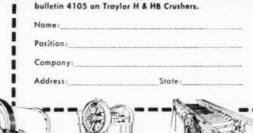
TO GREATER PROF

Sales Offices: New York . Chicago . San Francisco Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P.O.













MARVED

with the ONLY
COMPLETELY ENCLOSED
ADJUSTING SCREW

- Completely encased Adjusting Screw, protected from sand, grit and concrete at ALL TIMES for smoother action . . . completely protected from weather to prevent rust and corrosion . . . protected from damage in transit and storage.
- One piece straight Adjusting Bar and Locking Pin provides for faster turning . . . with no time wasted raising and lowering levers.
- Inner Tube and Outer Tube made of High Grade Steel for utmost strength at minimum weight.
- A No projections anywhere . . . streamlined for greater safety to workmen and to shorten expensive Setting-up and Taking-down time.

It will pay every contractor to replace out-moded shoring equipment with the New MARYEL Adjustable Prop with "Premium Performance" because only the New MARYEL has the Completely Encased Adjusting Screw built for Life Time Service.

Order Now . . . while prompt deliveries are available.

Available in three sizes . . . Maximum Adjustment to 15 feet.

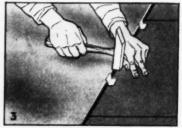
PRICES UPON REQUEST

MARVEL EQUIPMENT COMPANY

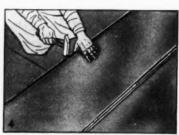
1055
Bowen St.

BUILDERS OF ADJUSTABLE SCAFFOLDS SINCE 1939

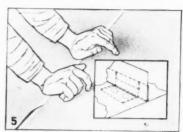
STEEL ROOFS . . . Continued from p. 178



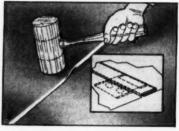
3. The back end tab of each cleat is bent back over the nail heads and malleted flat, to protect the nails and the terne metal strip subsequently laid over them.



4. The second strip is installed with its 1-in. flange adjacent to the ½-in. flange of the initial strip, and cleated down to the roof deck along its ½-in. flanged edge.



5. The top ½ in. of the 1-in. flange on the second strip is bent down over the top of the ½-in. flange of the initial strip.



6. The single locked seam is now malleted, folded side down, flat against the roof, producing a flat locked seam, or . . .

7. . . . for shop fabrication, the strip may be cut into 8- or 10-ft lengths, and formed on the brake.

(Continued on page 186)

"On-the-Job" Sawing Center Costs Only 10¢ per hour with DELTA Radial Saw

\$1,300,000 construction with saw investment of approximately \$400 at Metcalfe-Hamilton

Construction Companies in Kansas City, Mo.

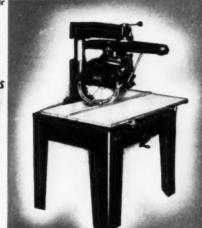
A job-site sawing center with Delta radial saws mass-cuts material, frees carpenters for actual construction, says Raymond D. Sharpe, manager of this project to erect three apartment buildings totaling 172 units.

"For excellent performance, ease of operation, safety, versatility and economy, Delta radial saws can't be beat," says Mr. Sharpe. "Our on-the-job installation costs only 10 cents per hour—does cross-cutting, ripping, beveling, dadoing

and general mill work. In 4000 hours of hard use, the only maintenance, except for blade wear, was one new switch."

Here, truly, is the way to cut costs, as live-wire builders the

country over are discovering to their profit. Use the coupon to get complete data on Delta radial saws.



ONLY WHOLLY NEW RADIAL SAW ON THE MARKET-Check these advantages

- 1 Exclusive—the saw blade is always above the table, swing a full 360° for any angle.
- 2. Controls up front, for ease and safety
- 3. Bigger capacity
- 4. Hardened "life-time" trackways
- 5. New "La-Rise" motor direct drive

7-8", 10", 12", 14", 16" models; power range ½ to 7½ H.P.

6. Quick-set stops - 30°, 45°, 60°, 90°

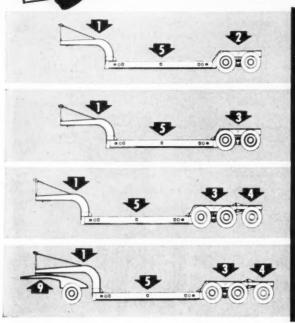
DELTA QUALITY POWER YOOLS

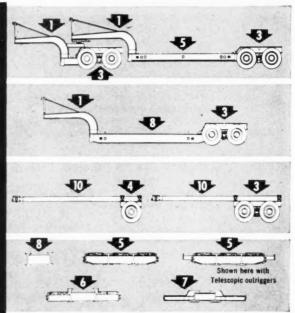
Another Product of Rockwell



Conversion the TALBERT way

Talbert Trailer component parts permit simple conversion for varied or specialized hauling problems.





Shown Here: Talbert Removable Gooseneck Trailer with Removable 3rd axle and Jeep Dolly with 6 wheel tractor.

- Removable gooseneck
- **9** Fixed rear axles
- Removable rear axles
- Removable third axles
- Standard deck (flat)
- Raised-center deck
- Drop-side deck
- 1 Beam deck
- O Single axle dolly
- Extendable pole trailer reach

THESE FEATURES ARE AVAILABLE FOR TALBERT TRAILERS IN EVERY CAPACITY



For additional details write for new Talbert general catalog No. 104

THE TALBERT CONSTRUCTION EQUIPMENT CO., of Lyons, Illinois manufactures a complete line of low-bed trailers and dump semi-trailers

THE TALBERT-WAY IS THE

FOR REAL HELP TO SMALL BUSINESS

It is ironic that one of the first jobs of the Eisenhower administration, so widely, and erroneously, tagged as a "big business" administration, must be to go to the relief of small business. This is necessary because the preceding administration, while continually proclaiming its tender regard for small business, actually impaired gravely the ability of small business to carry on successfully. This it did in the necessary haste of devising an emergency tax program to finance rearmament and the Korean War. Now the new administration must revise this tax structure to give small business a chance to make its key contribution to an expanding American economy.

How Taxes Hurt Small Business

Since the outbreak of the Korean War, small business has been handicapped by two principal features of the emergency tax program:

1) Many small firms are unable to retain enough of their earnings to provide for expansion because these earnings are drastically limited by the excess profits tax.

2) Small companies have received a very small share of the tax concessions allowed by the federal government to encourage construction of defense facilities.

A small business that succeeds and hence grows is particularly hard hit by the excess

profits tax. That tax, of course, applies to corporations having a net income of more than \$25,000 per year. It results in taking up to 82 cents on every dollar of profit that the company earns above what is called an "excess profits credit." For most small companies the credit depends on what was earned in 1946-49. This creates an element of gamble and discrimination in determining the amount of tax to be paid. Time has proved that it is impossible to select a base period for the tax that is fair to all companies. A young company starting in 1946-49 is peculiarly vulnerable, as its earnings in that period were necessarily low. Even on modest earnings today, it would pay a high excess profits tax.

It is true that Congress wrote into the excess profits tax law provisions to lessen the impact of the tax on growing companies. However, none of these provisions in practice has given much relief to small business.

"Relief" Provisions Give Little Relief

Small firms rely almost entirely on retained earnings to provide funds for improving their plants and equipment. They get very little help from the provisions (1) that no more than 70 per cent of total profits can be taxed away, (2) that additional earnings are allowed on an increase of invested capital or (3) that growing companies are allowed a

(Continued on next page)

rate of return on capital equal to the industry average.

Most large firms can obtain additional funds in the securities market. But small firms find it difficult to increase their capital by selling securities, since investors generally prefer the stocks or bonds of nationally known and seasoned companies. Few small companies, therefore, can reduce their tax burdens by increasing their invested capital, and few can meet their needs for equity capital if their rates of profit are no higher than those of the leading companies which generally set the average profit.

Small business has been equally at a disadvantage in the matter of accelerated depreciation for tax purposes. The government has encouraged a great expansion of our industrial plant, despite the very high rate of taxation on corporate earnings, by granting certificates of accelerated amortization on new plants built to support the defense program. These certificates allow business to charge off the cost of defense plants at a rapid rate. This decreases the earnings that are subject to taxes, and so increases the part of the earnings that may be retained in the business.

Growth is Stifled

But most of these tax concessions have been made to large firms especially equipped to handle the complex problems of defense production. Of the \$12 billion of new facilities so far approved for fast amortization, only 11 per cent are for companies with less than 500 employees, although the share of such companies in the normal civilian business is about 30 per cent. In only 2 of 12 industries studied by the Small Defense Plants Administration were small firms receiving what was estimated to be a fair share of the total tax amortization awarded.

Because they are unable either to retain enough earnings after taxes or to step up their depreciation allowances, most small firms are unable to keep up in the race to expand and modernize plant capacity. The Small Defense Plants Administrator, in his report to Congress, emphasized that small companies have been unable to do their full part in the defense program for lack of capital.

The Council of State Chambers of Commerce recently published an eight-state survey showing widespread cutbacks of p.c. for new plants by small and medium-sized companies. According to this report, "high federal taxes enacted since the beginning of the Korean War appear to be placing an effective brake on the rate of industrial expansion in all the states surveyed and probably in the 48 states generally . . . It is principally the small and medium-sized companies whose growth is being stifled."

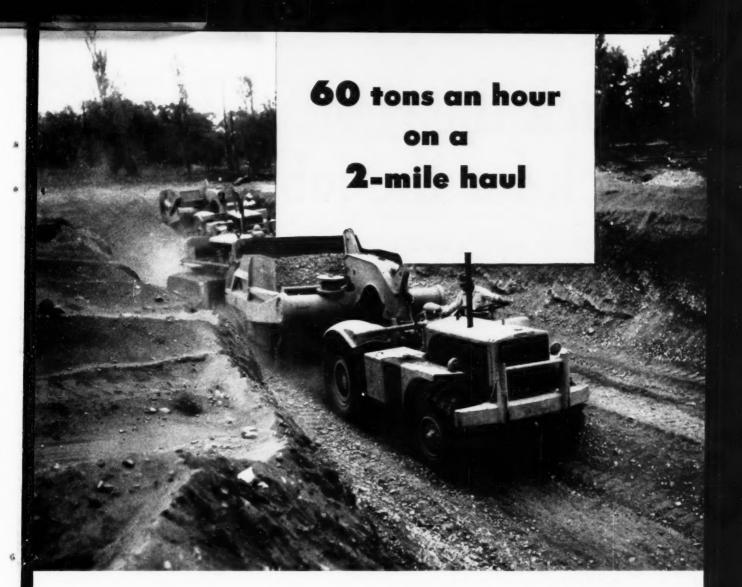
Some Ways to Help

The first step to relieve small companie. should be to free them from the excess profits tax. The nation as a whole would be far better off if the excess profits tax were allowed to die as scheduled on June 30, since the tax promotes waste as it stifles incentives. It is quite possible, however, that the politics of tax reduction, as opposed to the economics, will prevent the elimination of the tax during 1953.

If the tax is extended, provision should be made for a much broader exemption to smaller corporations. If net income up to \$100,000 a year, which in these days still constitutes small business, were exempted from the tax, the loss of revenue to the government would be about \$175 million. This relatively small amount could easily be offset by an increase in employment and incomes if small business is freed from its financial strait jacket and allowed to expand. Careful attention should be given also to the possibilities of allowing a higher rate of return on the first \$1 million of capital (roughly the amount it takes to provide 100 jobs) and of making special accelerated depreciation allowances to smaller firms. This is a matter so important that we shall return to it in a future editorial.

Relief for small business—relief from a financial paralysis that has kept it from playing its dynamic part as a growth element in our economy—would do much to give the lie to the notion that the Eisenhower administration is a "big business" operation. Much more important, it would be a long stride toward releasing the dynamic energies of many small businesses and businessmen to forward a continuing and expanding prosperity.

McGraw-Hill Publishing Company, Inc.



This Caterpillar DW10 Tractor and No. 15 Scraper are loading river gravel mixed with sand — a "dead" material, difficult to handle. Although haul distance is two miles, this husky yellow team moves 60 tons of gravel in 60 minutes. Owned by K. C. Dack of Milton, Ore., they are under hourly contract to repair a secondary road in Morrow County.

Mr. Dack has two DW10s with No. 15s hauling gravel on this job, push-loaded by a Cat* D8 Tractor. "They load faster, with bigger and better loads than any other scraper," he reports. The No. 15 Scraper is designed to be a real producer on long hauls. With its pumping action, it can get heaped loads of even "dead" material quickly and smoothly. And, with its low center of gravity, the No. 15 remains stable where the going is rough.

Its teammate, the Cat DW10 Tractor, can highball at speeds up to 24.5 m.p.h. Its long-lived Caterpillar

Diesel Engine delivers an honest 115 HP, on inexpensive No. 2 furnace oil. This rugged team is built to stay on the job without tinkering. Beefed-up construction and high-quality Caterpillar manufacture mean that it can earn you profits for years to come.

Your Caterpillar Dealer will gladly demonstrate the fast-hauling tractor and scraper that fit your needs. And you can rely on him for after-sales service and genuine factory parts. Call him today.

Caterpillar Tractor Co., Peoria, Illinois.

CATERPILLAR*

YOUR DEALER
WILL DEMONSTRATE

Pick the right jack for the job

... from the world's most complete line of hydraulic jacks



20-TON BLACKHAWK JACKS (Model EA-27) pull cable to proper tension on this pontoon bridge. Gauge registers required tension for inspector's OK. Don't do it the bard way — do it the HYDRAULIC WAY!



HYDRAULIC JACKS ... up to 100 tons





HYDRAULIC GAUGES VALVES - FITTINGS





"PORTO-POWER" REMOTE-CONTROLLED JACKS-PUSH & PULL



POWER-DRIVEN HYDRAULIC PUMPS



HYDRAULIC PIPE BENDERS



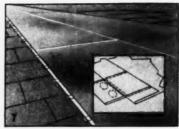
HYDRAULIC KNOCK-OUT PUNCHES

YOU GET ALL THESE HYDRAULIC TOOLS ONLY FROM BLACKHAWK

Save buying time when you need hydraulic equipment. Specify Blackhawk - and be sure you'll get the hydraulic tool that will match your requirements exactly.

Order from leading supply houses. Write for free catalogs. Products of Blackhawk Mfg. Co., Dept. J-2343, Milwaukee 1, Wisconsin.

STEEL ROOFS . . . Cont'd from p. 180



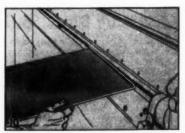
The 1/2-in. flanges are bent on the long sides of each strip, and the flanges bent upward on one long edge-downward on the other long edge. The upturned flanges are cleated down, as shown above.



8. The next strip, is laid overlapping the preceding strip, with one 1/2-in. flange facing downward, and the strips are locked together by sliding the downward turned flange of the second strip into the upward turned flange of the first



9. This type of seam is malleted down flat against the roof, producing a flat locked seam of the same type as shown in the first six steps.



10. When a cross-seam is avoidable, one end of one strip is bent to a 90-deg flange 1/2 in. high, (Continued on page 188)



Stocks of Bethlehein wire rope are usually no farther away than your telephone. Warehouse facilities are geared for high-speed service on emergency calls.

Heading your way in a hurry

Ever had a job stalled by a sudden emergency need for wire rope? A job where every hour, every minute, counted?

Those things happen. And when they do it's good to know that you're always near a Bethlehem mill depot or distributor. Through a large, quick-acting distribution system, Bethlehem makes it easy to get the rope you need . . . the proper size, type, and grade. Whether you're out in the sagebrush or working a job in the heart of the city, you're never very far from

a large, convenient warehouse supply.

So put in a call, outline your needs, and the Bethlehem rope you want will soon be heading your way. Sound, dependable rope. There's none better. And there's no better, friendlier service than Bethlehem and its hundreds of distributors can offer you.

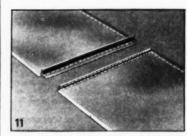
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Export Distributor: Bethlehem Steel Export Corporation

When you think WIRE ROPE . . . think BETHLEHEM



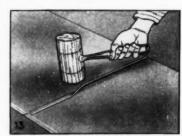
and one end of the other strip is bent to a 90-deg flange 1 in. high, using tongs or a cornice brake.



11. Trim the corners on the flanged end of each strip sufficiently to clear the end flange and the side flanges.



12. Position the two strips to be joined by the cross-seam so that the ½-in. flange of one strip is adjacent to the 1-in. flange of the other strip, and the top ½ in. of the 1-in. flange is bent down over the ½-in. flange.



13. The cross-seam is malleted down flat, to produce a flat locked seam of the same type as the vertical seams of the roof. Cross-seams must be staggered, as shown in step 7, to avoid undue thickness of terne metal roofing on the vertical flat locked seams of the roof.

14. Solder all cross-seams along the free edge, which must face downward with the flow of water.

15. Solder all vertical flat locked seams along their free edges, and a finished roof of corrosion-resistant, leakproof metal is presented to the elements.

COMING ... in July Equipment-Maintenance Directory



chased their ninth new 9-ton JT-409.

The JT-409 is a heavy-duty tilt trailer built for rugged treatment on all types of roads under the full gamut of climatic conditions. It would pay you to follow the lead of Texas by investigating this model as well as the full line of new Jahn Heavy Duty Trailers. Write for additional information by filling out and mailing the attached coupon.





...that's a GARDNER-DENVER 600!

Your compressor man soon learns the Gardner-Denver 600 requires no pampering — no tinkering.

He spots it off-level to save time.

He starts it — then walks away — knowing the Gardner-Denver 600 has the stamina for a full day's work any day.

COMPARE VALUE BEFORE YOU BUY — AND YOU'LL CHOOSE THE GARDNER-DENVER 600. Send for bulletin PC-12 today!

GARDNER-DENVER Since 1859

Gardner-Denver Company, Quincy, Illinois In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Āve., Toronto 13, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND BOCK DRILLS

CONSTRUCTION EQUIPMENT NEWS





Gradall Features Pushbutton Remote Controls and Short Wheelbase

If you have a yearning to be a pushbutton operator, then the Gradall multi-purpose machine is going to appeal to you. Available as optional, it has a remote control, operated by pushbuttons, that permits the operator to actuate a pneumatic-electrical control system to start and stop the engine, drive the unit for-

ward or backward and even steer the wheels. The rig also is available with a new undercarriage and is said to be tip-proof and eliminate outriggers. The unit has a gross weight of 40,000 lb—Gradall Div., Warner & Swasey Co., 5701 Carnegie Ave., Cleveland, Ohio



Scoopmobile Employs New Principle in Construction

Two new 4-wheel planetary drive, 4-wheel power steering front-end loaders are being produced by Mixermobile. The LD5 has a capacity of 34 to 1 cu yd and the LD10, 136 to 2 cu yd. A feature of these machines is hinging two power axle elements together with an oscillating center-pin steering coupling.—Mixermobile Mfrs., 8027 N. E. Killingsworth St., Portland, Ore.



Blanket-Type Wrapper

A wrap-around pipe insulation is a soft, resilient roll-type blanket called Aerowrap, available for either hot or cold pipes.—Owens-Corning Fiberglas Corp., Toledo, Ohio

On-the-Job Previews of Machinery, Tools and Equipment



Compact Compressor

Said to be one of the most compact and efficient truck-mounted air compressors ever developed is the new "Air Van". Available in either 105 or 160 cfm.—Davey Compressor Co., Kent, Ohio

Bigger Shaft Mucker

Bucyrus-Erie has announced a larger, ½-cu yd model of the hydraulically operated Hydromucker. It weighs 2,025 lb, has alloy steel lips and teeth and is closed by two single-acting hydraulic rams mounted horizontally within the bucket yoke. Power from two 6-cylinder pumps delivers pressures up to 3,500 psi provides maximum closing pressure. — Bucyrus-Erie Co., S. Milwaukee, Wis.





Folding Trailer Handles 75 Tons

A trailer that unfolds to form its own loading ramp, up which can be run 75-ton units, permits oneman operation and loading in 5 min. A winch-equipped truck lifts the folding neck. The trailer has a 12x24-ft platform and an over-all length of 43 ft. It rolls on 16, 11:00x20, 12-ply tires, mounted on multiple oscillating trunnions. It's called Model 75-ton F075M. — Martin Machine Co., Kewanee, Ill.



Pioneer Announces 42x48 Jaw Crusher

Pioneer includes a new jaw crusher to its line with the addition of a 94,000-lb unit having a crushing chamber of 4 cu yd. Adjustments permit an opening at the bottom of the jaws from 4 to 13 in.—Pioneer Engineering Works, 1515 Central Ave., Minneapolis, Minn.



Ditcher Has Three Principal Features

Designed for use by utilities, governmental bodies and contractors, is the Model 705-B Runabout Ditcher. An improved design from the Model 705-A (CM&E, June '52, p. 168), the new unit features a fluid coupling which is combined with the fully hy
(Continued on next page)



GRADER BLADES

MOLD BOARDS

SCARIFYING BLADES

on the punishing turnpike jobs, original equipment producers know their products will move inches, feet, yards or miles . . . thanks to a Shunk blade.

On a big, tough grader, 'dozer or scraper, the Shunk blade really likes the big pikes. Highway construction and maintenance contractors look to a Shunk blade for endurance and long wear. They specify a Shunk for its superior quality.

Distributors everywhere know that their recommendation of a Shunk blade for turnpike jobs will be backed by Shunk service and reliability.

Put this rugged work horse to work on your next pike job. More information will be gladly provided.



CONSTRUCTION EQUIPMENT NEWS

. . . Continued

draulic Hydra-crowd digging transmission and a special curvedtooth bucket line. The fluid coupling provides a positive means of protecting the drive mechanism from sudden shock overloads and underground obstructions. The Hydra-crowd features a finger-tip control and gives digging speed up to 16 fpm. Field tests of the special curved-tooth bucket line indicate a life expectancy of from 3 to 5 times that which is normal for digging teeth.-Barber-Greene Co., 400 Highland Ave., Aurora, Ill.



CENTERING HEAD — The Boyce centering head is described by its maker as "five tools in one," replac-ing protractor, centerhead, centerpunch, level and scale. The pocket size device weighs 9 oz, can be used to measure or establish the degree of any angle or of the bend on outside or inside of any circumference. It also measures degree of declivity of any flat surface, marks a point at any degree from center on pipe or other round objects. Body is cast aluminum, dial is graduated in 21/2 deg with 10-deg marks and punch is a 3/8-in. drill rod with hardened point.-Contour Marker Corp., 1843 E. Compton Blvd., Compton, Calif.

SNOW REMOVAL MACHINE-The Sno-Mate is a snow removal machine that comes in two models: self-propelled or push-type. It has been designed to remove any type of snow under any snow conditions, according to the manufacturer. It will cut a clean path 24 in. wide, and an adjustable chute tip regulates the distance snow is thrown-up to 30 ft. The unit is powered by a 2.5-hp engine, laboratory-tested to start and operate efficiently under arctic conditions. The push type, Model 24S, can be changed to self-propelled type (Model 24SP) at any time. Net weight is 125 lb, and an adjustable clutch drives the propelled type by means of a V-belt.—Triad Engineering & Mfg., Rock Island, Ill.

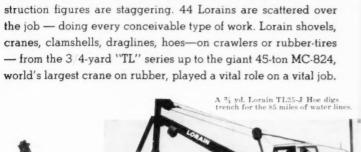
H-BOME



1½ yd. Lorain 79-J shovel loads 2500 yds. of borrow a

44 LORAINS work on \$1,500,000,000 Savannah River Plant of A.E.C.

"The largest industrial project ever undertaken from scratch" describes the history-making H-Bomb material plant in South Carolina. Job facts (at right) challenge the imagination. Construction figures are staggering. 44 Lorains are scattered over



20-ton Lorain Moto-Crane, Iodel MC-414, handles concrete forms

JOB HIGHLIGHTS

. . . facts and figures

CONTRACTOR - E. I. DuPont de Nemours & Co., prime contractors for design, construction and operation, have purchased a total of 115 Lorains. (All machines shown here are owned by DuPont).

SIZE - Project covers 315 square miles; 105 miles of new roads and 66 miles of permanent railroads constructed; 250 permanent buildings.

MATERIALS - 34,000,000 yards of excavation; 1,250,000 yards of concrete; 75,000,000 bd. ft. of lumber; 25,000 tons of structural steel; 85 miles of underground water lines; 95 miles of power transmission lines.

MANPOWER - 38,223 peak on construction with a \$150,000,000 annual payroll; 7,100 permanent staff with a \$30,000,000 annual payroll.

LORAINS - 44 Lorains serving prime and sub-contractors; at work on every kind of construction, every kind of material handling, every kind of digging.

Another big job . . . and another big Lorain fleet . . . because Lorains get the call when there are many KINDS of jobs to be filled. SELECTION UNLIMITED of a quality product is the reason why. Why not take a tip from jobs like these and let your Thew-Lorain Distributor fill your needs . . . for EVERY job?

THE THEW SHOVEL CO., LORAIN, OHIO

LORAIN



An amazing combination of ancient instinct and crude instruments, the temples of India created problems of fantastic, near-insoluble proportions.

Today, brilliant new developments and superb modern equipment go a long way towards solving the problems of the modern engineer. Within your reach are the finest instruments since the dawn of civilization... the complete line of Kern surveying instruments.

KERN PENTAGONAL PRISMS

Designed to save you time and effort, the Kern pentagonal prisms are extremely practicel and efficient. Easily attached to a lanyard or a plumbing rod, Kern Pentagonal Prisms come to you complete with protective zipper type leather case. Two models are available: the No. 118, a double pentaprism, allowing simultaneous sights left and right and streight ahead; and the No. 119A with a single pentaprism in a revolving case. Write today for detailed information!

Complete Service Department . Factory Trained Personnel

Kern Surveying Instrument Division

PAUL REINHART CO., INC.
70 Begyer Street, New York City

BUILT-IN DEVICE FOR TRUCK WEIGHT-A method of supporting truck, truck-trailer and bus bodies on cushions of air provides the means of weighing a load at any time. The new system replaces conventional springs at half their cost, according to the company, and keeps the vehicle level regardless of unbalanced loading. Increased air pressure in the cushions compensates for any undue depression. A gage provides accurate weight readings so that a driver will know when the load limit has been reached. He can also determine the weight of any particular item in the load as soon as it is loaded and a quick computation made to determine the difference in readings. Called the Pnu-Ride Weighmaster System, it operates from the air brake system and requires only 20 to 50 lb of air. Weber Instrument Co., Div. of Link Engineering Co., 13841 Elmira Ave., Detroit 27, Mich.

SELECTOR CHART — The holding power of expansion shields varies in accordance with the type and quality of masonry, depth of hole, length and side of bolts or screw, and proper installation. To aid workmen, the U. S. Expansion Bolt Co. offers selector chart which classifies each of the company's anchoring devices according to load type, masonry classification, safe working load and metal table. Four load types are considered: dead, variable, vibrating and shock load. Safe working loads are specified for each product from 1/8 to 1 in., and the selector determines the proper size and number of anchoring devices to be used, depending upon weight of the object to be anchored. All figures are based on pull-out tests. The metal table gives material specifications of steel, malleable iron, zinc or lead alloy .- United States Expansion Bolt Co., York, Pa.

4-CYL V-TYPE ENGINE—The most recent addition to the already extensive line of Wisconsin heavyduty, air-cooled engines is the 4-cyl, V-type Model VG4D. This engine has a 31/2-in. bore, 4-in. stroke, 154cu. in. displacement and develops peak rating of 36 hp at 2,200 rpm. The VG4D, designed to provide power for operating equipment within a 25- to 36-hp range, is relatively light and compact to simplify installation on equipment where weight and space limitations are important factors. Traditional Wisconsin features, such as tapered roller main bearings, balanced crankshaft, smooth crank pins and Stellitefaced exhaust valves, are included along with positive-type valve rotators on exhaust valves. These engines may be equipped to operate on kerosene, fuel oil or natural gas -Wisconsin Motor Corp., Milwaukee, Wis.



While "modern" men still swing from trees, architects of ancient India had already built a monumental civilization. From crude, uncertain instruments grew everlasting memorials to a century-old profession.

THIS CHANGING WORLD

Today's draftsman builds with a far greater certainty . . . His Kern precision drawing equipment creating for him an endless stream of modern miracles. Yes, Kern kits and equipment assure you of complete cccuracy, ultimate precision. Kit prices from \$15 to \$100.

Write today for free descriptive literature and catalogue on kits and individual prices.

Available at your dealer or write:

Kern Drawing Instrument

BORDEN & RILEY PAPER COMPANY 60 E. 11 Street, New York City



'trucks can do to save money and boost profits on your job through unfaltering traction and faster, uninterrupted schedules.

That's because only Mack six-wheelers boast the unique advantages of Mack's exclusive Balanced Bogie and Power Divider . . . with all the benefits they give you in maximum flexibility, even tire loading, uniform braking, simplicity of design and positive traction regardless of the toughest terrain.

Write to us today for your free copy of booklet describing the Mack Balanced Bogie with Power Divider, or contact your nearest Mack branch or distributor.



... outlast them all

Mack Trucks, Empire State Building, New York 1, N. Y. Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.



Milwaukee, Detroit, Chicago, Kansas City, Denver, Dallas, Los Angeles, Seattle; Rio de Janeiro, Brazil.



Heiliner 2-whee Tractor and Scrape



PLATFORM CONVERSION HOIST



CONTRACTOR'S BODY

MAGNET APPLICATION IDEAS-

Some months ago the Carboloy Division of General Electric Co. made available two kits of magnets. The first contained 48 Carboloy permanent magnets in eight styles; the second contains 18 magnets in five styles. The company suggested that industry try them in various combinations for different applications. Now the company announces a "once-a-month" information kit describing these application ideas. The basic kit consists of a heavy binder with six application ideas. Each month the company will distribute a new sheet to those who request the original kit. The six starter ideas include: Use of magnets on conveyors to transport ferrous parts without actually tying or fastening; on sheet steel separators; on floor sweepers to clean the floor of ferrous objects; on plant layouts, tool racks and shear tables for cutting sheet metal. Each idea sheet will contain complete technical information and diagrams regarding the application described.-Carboloy Dept., General Electric Co., Box 237, Roosevelt Park Annex, Detroit 32, Mich.

CIRCULAR BLADE BRUSH SAW

-A circular brush saw, called the Wilton, operates on a gasoline and oil mixture and turns 3.500 to 4.000 rpm. It has several features including: Blade fixed at 10-deg angle to permit horizontal, ground-level cutting; adjustable handle; an assembly that permits swing upward, for vertical cutting; leg guides for extra balance; a centrifugal-type clutch that engages as motor accelerates. Powered by a 2-cycle, 1.2-hp motor, the complete unit weighs less than The circular blade is designed to slash vines, brush and saplings up to 4-in. stems. It can be swung in scythe fashion on light brush.-Williams & Hussey Machine Corp., Milford, N. H.

Correction

AN ILLUSTRATION on page 122 in the February issue shows a Winco Model 4500 portable generator connected to a chain saw. The picture was taken by a photographer who did not realize that the generator turns out 60-cycle, 1115-v singlephase, ac current, but that the Homelite saw pictured has a high-cycle motor which required 180-cycle, 230v three-phase ac current. The generator could not possibly operate that

The deceptive photo got into a group of similar pictures of the generator and inadvertently became part of a story on the new product. We are grateful to a vigilant reader for bringing this to our attention.-Ed.



Terquson
3 to 5 TON
Portable
TANDEM

* INSTANTLY PORTABLE

* EASY TO OPERATE

★ STREAMLINED FOR STRENGTH AND APPEARANCE

* BUILT FOR YEARS OF SERVICE

★ 171 LBS. COMPRESSION PER LINEAL INCH

This rugged, easy-to-operate combination CONSTRUCTION and MAINTENANCE ROLLER trails to your job on rubber tire travel wheels, at normal truck speed. Instantly ready for work, as travel wheels retract hydraulically. Roller operates forward or backward alongside any standard curb without removing travel wheels. Or with wheels removed (in 2 minutes) roller will operate within 4 inches of fence or wall. Rear compression roller 48" in diameter, 42" wide. Front steering roller 30" diameter, 40" wide. Detailed specifications gladly sent on request.

WRITE FOR DESCRIPTIVE FOLDER and PRICES

ROLLER

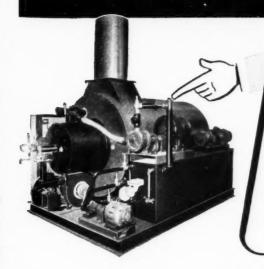
SHOVEL SUPPLY COMPANY, Mfrs.

Office & Plant

Dallas, Texas

Mail Addr. P.O. BOX 1369
Cable Addr. SHOCO DALLAS

HO Hot Oil Heaters LO Pressure Heating NO Freeze, Rust or Pressure Problems



Here's the most efficient hot oil heating system available today! Hopkins developed this low-pressure heater for asphalts, chemicals, heavy oils, plastics, waxes, and many other materials. It's completely automatic, easy to operate, and gives you accurate, uniform heat control 24 hours a day. Ends all freeze, rust and pressure problems—lessens maintenance worries.

If your industrial heating process requires a temperature between 212° F. and 400° F., the HO System is your best bet for dependable, low-cost heating. Write or phone us today for literature and complete details.

HOPKINS VOLCANIC SPECIALTIES, INC.
ALLIANCE, OHIO

SANSTORM IT!





More and more construction companies are cleaning steel fabrications, forms, equipment cheaper and quicker with Sanstorms—the most famous machines in sandblasting.

Because they won't foul, will use any abrasive the job requires—gentle—to—smooth off or tough to skim off heavy scale—you'll get big savings with a Sanstorm.

Write Today about your cleaning chores and Sanstorm blastcleaning experts will shoot back recommendations without cost or obligation to solve your cleaning problems.

SANSTORM

MANUFACTURING COMPANY
P. O. BOX 1173 - C, FRESNO, CALIFORNIA

meet the... HEAVYWEIGHTS

JOHN L. SULLIVAN ... heavyweight champion of the

world 1882 to 1892 weight ________202

weight	202
height5'	101/2"
reach	76"
shoe size	111/2





WAYNE CRANE

... heavyweight champion of the

working weight	33,050 lbs.
lifting capacity	8 tons
digging depth	
standard tread	width 20"

You be judge and jury—check with a Wayne Crane owner before you decide to buy any crane-excavator. Wayne Crane will pay for a phone call to the one nearest you. Your dealer will give you his name.

Prove to yourself why men who own and

operate Wayne Cranes say. "It's a real heavyweight . . . built for more hours of profitable operation than any machine on the market today."

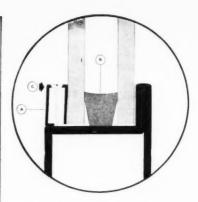
Also available—Model 20, 10-ton, self-

Also available—Model 20, 10-ton, self-propelled, wheel-mounted; Model 40, 121/2-ton, truck-mounted.

MFD. BY WAYNE CRANE DIV., AMERICAN STEEL DREDGE CO. INC., FORT WAYNE 1, IND.

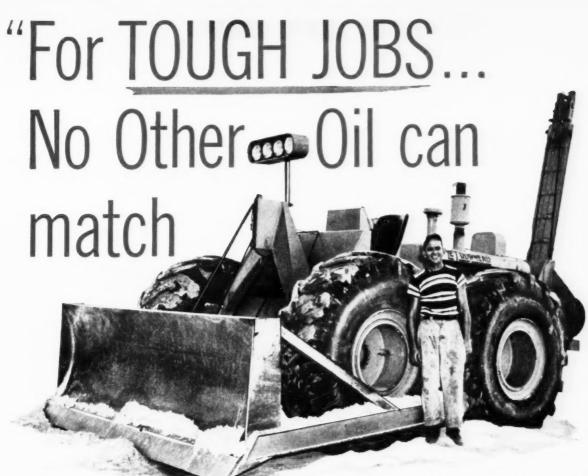
SEE YOUR WAYNE CRANE DEALER TODAY!

Complete service and parts facilities are maintained by Wayne Crane Distributors in all principal cities.



INSULATING GLASS - Thermopane, a product of Libbey-Owens-Ford Glass Co., is an assembly of two sheets of glass with dehydrated air sealed in between them at the factory and the entire assembly then shipped for installation in frames made by other companies. Thermo-Glaze, a product of Steelbilt, Inc., is a method incorporated into door-wall and window frames by which a local glazier installs two sheets of glass cut to size from his regular stock. He is then able to hermetically seal the sandwiched air space and fill it with dehydrated air at the time he installs the glass at the job site. Although both products are intended to perform an insulating function, they are entirely different in nature and should not be confused. At the suggestion of L-O-F, Steelbilt has changed the trade name of its dual glazing system from Thermo-Glaze to Dualbilt to avoid possibility of confusion between the two products. Steelbilt, incidentally, is one of the manufacturers that makes frames for Thermopane installations.-Steelbilt. Inc., 4801 E. Washington Blvd., Los Angeles 22, Calif., and Libbey-Owens-Ford Glass Co., Nicholas Bldg., Toledo, Ohio

ROLLER CHAIN DRIVES-A complete line of Taper-Lock sprockets and Dodge roller chain will soon be available from stocks of distributors for Dodge Mfg Co. In introducing these new products the 75-yr-old power transmission firm enters the roller chain drive field. Claiming that the chief advantage is to bring "off-the-shelf" availability to roller chain drives, the company has achieved the application to sprockets of the Taper-Lock principle, already proved in millions of V-belt, conveyor pulley, coupling and silent chain installations. Taper - Lock chain installations. Taper - Lock sprockets and bushings need no precision reboring of sprockets to fit shafts; and turning and grinding of shafts for a tight fit. Taper-Lock is keyed to the shaft and also grips it with the firmness of a shrunk-on fit. When a sprocket is to be replaced, it can be easily and quickly removed and the bushing re-used.-Dodge Mfg. Corp., Mishawaka, Ind.



Sinclair SUPER TENOL"

... Elvin L. Jones, Supt. of Maintenance Standard Sand and Silica Company

The Standard Sand and Silica

Company of Davenport, Florida, mines 2,000 tons of sand a day, six days a week. Its products are used in concrete, masonry work and in sandblasting ships, buildings and railroad equipment.

One of the main pieces of equipment is a Super C Tournadozer. Mr. Elvin L. Jones, Supt. of Maintenance says that "Sinclair SUPER TENOL® is giving superior service in this machine. When it comes to tough jobs... there's not another oil on the market that can match SUPER TENOL."

He continues, "SUPER TENOL has also been used in our G.M. 6-71 diesel for 18 months. One third of the time, this machine operated 24 hours a day...and we haven't spent a single penny for maintenance."

To find out how Sinclair Products can help you cut maintenance costs and keep production in high gear, call your local Sinclair Representative or write to Sinclair Refining Company, 600 Fifth Avenue, New York 20, N. Y. SINCLAIR SUPER TENOL

...for YOUR Tough Jobs



FIELD JOB REPORT

OWNER:

Carl Goodwin & Sons, Allegan, Michigan.

PROJECT:

Grading and Paving $5\frac{1}{2}$ miles on highway M-140, Watervliet, Michigan.

Blue clay...average digging depth, 14 feet.

CONDITIONS:

MICHIGAN MODEL C-16 HOE with 31-inch dipper. Powered with GM 2-71 diesel. Crawler pads 30 inches wide.

EQUIPMENT:

Wayne Goodwin reports complete satisfaction with his new MICHIGAN C-16 HOE. New gooseneck boom digs down to 18 feet. Real stability is assured with the C-16's 10'-1" wide, 11'-10" long crawler base. The 30-inch wide pads give a ground bearing area of 7,440 square inches.

REMARKS:

MICHIGAN POWER SHOVEL COMPANY

Benton Harbor, Michigan, U.S.A.



WINDOW UNITS-While the carpenter at the right adds another fixed window unit, the one at left attaches a piece of upright trim across two others and top and bottom wood-louvered units. These two types, along with a ventilating window unit and an insulated wall unit. complete the line of modular units available from this manufacturer. The window system is designed for glazing with Thermopane, made by Libbey-Owens-Ford Glass Co. Units measure 4 ft by 2 ft 4 in. and are 4% in. thick. They interlock to stack in any desired combination, horizontally or vertically and each has a load-bearing factor of 2,400 lb. Vent units have exterior louvers and adjustable, drop-down interior doors. They are also provided in quarter- and half- sizes to provide narrow strips of ventilation, and at the same time produce interesting design effects. Only common household tools are needed to erect an entire window wall. Top, bottom and ends of each unit have two grooves for insertion of splines for strengthening and sealing. All butted edges are covered with trim. The units are delivered fully glazed, ready for installation.-Solar Air-Flo, Inc., Elkhart, Ind.

REDESIGNED 300-AMP AC WELD-ER-A redesigned 300-amp ac welding transformer, featuring stepless current selection from 40 to 375 amp, has been announced by this manufacturer. Easy current selections are possible by using a finely threaded screw adjustment for practically all applications from lowcurrent sheet metal work to heavyduty, high-current industrial jobs. It accommodates electrodes from 3/32- to 1/4- in. dia and has a quickchange switch for changing from high to low range, or reverse. The welder is built with studs at the base to simplify connecting electrodes and work cables. Powerfactor correction capacitors assure low power costs, according to the company. The machine measures 21 in. in diameter and is 36 in. high. Its weight is 328 lb.-Welding Dept., General Electric Co., Schenectady 5,

LeTourneau pictures of the month...



these Tournarockers are hauling 130 yds of fill hourly for the largest power project in Europe — the Rhone River development of France. When completed in 1965, its 22 dams and power plants will provide 13 billion kw, 3 billion more than our TVA.



out of 31 days on this Minnesota highway job at Victoria. Then, near the end of the job when every hour counted (to make up for earlier weather delays), Johnson Constr Co. of Litchfield got another bad break in the weather. This time 5 inches of rain came down in 48 hrs. Johnson's 2 C Tournapulls went back to work as soon as the rain stopped, loading 10 pay yds of saturated clay, loam and sand every 60 seconds. The 2 rigs consistently made 20 trips hourly over 2000-ft cycles, put dirtmoving back on schedule.



LAND OR SEA-It takes more than water to stop a versatile "go-anywhere" Tournatractor! Here, on an unusual application in northern California, Tournatractor wades into a swollen stream to clear brush and divert water-flow from grading in background. Unit's electric control system isn't affected by

works efficiently through rain, humid weather. This wet weather performance is a part of its unique design. One of these electric motors, submerged since 1948 as an experiment at LeTourneau's Peoria, Illinois factory, still starts at the touch of a switch and runs as well as it ever did.

Continued on next right-hand page

Can You Name It?

The men on this "air conditioned" model 1910 truck really had an out-infront riding position. This old COE job had a 4-ton capacity and its brand name is one that's famous among present-day heavy-duty trucks.



PERFECTION BODIES & HOISTS have been OUT IN FRONT for

over a third of a Century

During the past 35 years the motor truck industry has multiplied itself approximately 130 times. And keeping pace with this tremendous growth, PERFECTION has been constantly out in front as an independent manufacturer in the truck body field. Likewise, PERFECTION Bodies and Hoists are an out-in-front choice of both truck dealers and users because they are —

DESIGNED — to permit quick, easy installation on your trucks.

- with adequate safety factors.
- to deliver the best performance on the job.

CONSTRUCTED - of high quality materials.

- by skilled workmen.
- to give the longest service on the job.

Photo shows a PERFECTION No. 354 Heavy-Duty Dump Body of 15-yd. capacity installed on a semitrailer with a PERFECTION Iso-Draulic Roll-A-Lift.

For literature write Dept. M-43.



STAND an SPEC DUM BOD

STANDARD

SPECIAL

DUMP
BODIES

TRUCK BODIES

AND
HYDRAULIC HOISTS

FOR ANY TRUCK STANDARD OF SPECIAL UNITS IN ALL SIZES + FOR ANY USE

HYDRAULIC HOISTS LIGHT MEDIUM HEAVY SERVICE HYDRA-POWER END GATE

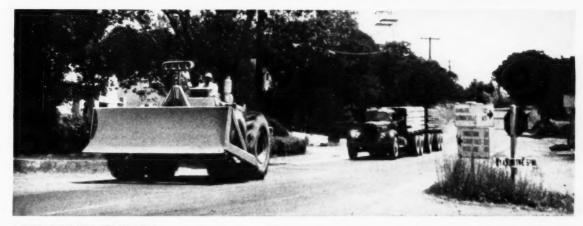
Engineered, Manufactured, and Guaranteed by

THE PERFECTION STEEL BODY COMPANY .

1

Galion, Ohio, U.S.A.

LeTourneau pictures of the month (cont'd) . . .



"BE RIGHT THERE"—Ten miles to the next assignment is only a matter of 35 minutes or so for the speedy rubber-tired Tournatractor. This San Francisco rig goes everywhere...

crosses railroad tracks, curbing, blacktop. Its traffic speeds average 17 to 19 mph. You too can eliminate trailer expense, loading and unloading delays with this high-speed tractor on rubber.



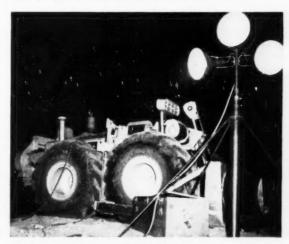
OUTLASTS TRACKS, 4 TO 1—This material may look like powder, but it's sand ... abrasive, dead sand. It wears out crawler tracks in 4 to 6 months, yet Owner C. E. Ulery of Jacksonville, Fla, estimates tires should last at least 2 to 3 years. Despite 100 lbs rolling resistance, rig moved 9 loads (55 pay yds) of sand hourly on 2700 ft cycles.



180° TURN IN 12'9" RADIUS—Tight quarters and soft footing made no difference to Campbell & Kay of Tyler, Texas, on this local county road job. Their D Tournapull simply spread its load, made power turn in radius of 12'9", and hurried back to the cut. High-fraction tires and power-proportioning differential pulled rig uphill over poor footing.



MOUNTAIN GOAT—Agile Tournarocker climbs nimbly over rock to dump. Sharp edges do little damage to rig's big tires. "For hwy work in the mountains," says Owner Weatherall of Huntington, W. Va, "there's nothing like Tournarockers. My costs per yd with these rigs are 40% lower than with trucks."



EMERGENCY GENERATOR—Electric control system on Tournatractor gives you a portable emergency powerhouse to generate 110 or 220 volt current. Use for lighting or to operate welders and power tools. Unit can be driven anywhere.

Continued on next right-hand page



New type Para-Plastic JF for airfield and airport construction. Resists dissolution by Jet Fuel spillage or leaks. All other Para-Plastic features included. Ask for details.

*Para-Plastic is one of the many pat-ented products developed for the Construction Industry by Servicised Products Corp.



Write for complete information on Para-Plastic for sealing any joint.

RUGGEDLY-BUILT PILE EXTRACTORS

Provide exceptional pulling power, with the sharp energy of blow needed to vibrate and loosen stubbornly set piling. These double-acting extractors come in two standard models—heavy and extra heavy. Standardized line also contains 11 doubleacting hammers and 5 single-acting hammers. Write for free Bulletin.

Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION

MANUFACTURING ENGINEERS 14 PARK ROW, NEW YORK 38, N. Y.

BETTER MAINTENANCE PROCEDURES TO SAVE YOU MONEY ON REPAIRS

Don't forget! Construction Methods and Equipment's 5th Annual Maintenance number is coming in July. Again it will be crammed with articles aimed at better maintenance procedures to save you money on repairs.

In addition, it will include, as last year, the Inventory of Manufacturers' Manuals on the operation, maintenance, and repair of construction equipment. Reserve extra copies for your men now by sending your check to the Editor.

CONSTRUCTION METHODS and EQUIPMENT

330 W. 42 St., New York 36, N. Y.

Price \$1.00 per copy



DUAL-VOLTAGE, 5-KW GENER-ATOR-Homelite's newest generator is the Model 32A-115/230-1. It is a dual-voltage rig, rated at 5 kw. It will carry a continuous load of 5,000 w, single phase, 60 cycle, ac at either 115 or 230 v. A 115-v convenience outlet is supplied along with a 3-pole receptacle for connecting either 115- or 230-v motors, tools and appliances. It's powered by a Homelite Model 32 gas engine, and the armature is keyed directly to the crankshaft for maximum compactness. Voltage regulation from no load to full load is 4%. The generator has ball and needle bearings at every friction point, and a pressure vapor oiling system assures adequate lubrication of all engine parts. Major castings are of aluminum alloy, and the unit, complete with engine, weighs only 228 lb. It measures 29x24½x25½ in., with adjustable handles that allow two or four men to carry it.-Homelite Corp., 67 Riverdale Ave., Port Chester, N. Y.

ELECTRIFLOOR APPROVED BY U.L.—The electrified steel panel sub-floor recently announced has received the listing and approval of Underwriters' Laboratories, Inc. Underwriters' has assigned card Nos. 24596 and E24612 to Detroit Steel Products Co. and National Electric Products Corp., respectively, the companies cooperating in production of the cellular light-gage steel floor. National Electric's contribution to the electrifloor is a header duct system with conductors running through the cells of the floor. With this system electrical outlets can be installed in every square foot of floor. The subfloor is composed of unit panels, welded together in any combination to fit any shape of building. The Fenestra-Nepco electrifloor has already been specified for installation in Detroit's City-County building; in Milwaukee, Wilkes-Barre, Scranton and Denver airports; and in many schools and office buildings throughout the country, according to the joint company announcement.-Detroit Steel Products Co., Detroit, Mich.

LeTourneau pictures of the month (cont'd) . . .



WORKING ON THE LEVEE — W. G. Cook Constr Co, Jackson, Mississippi, with contract for a 970,000-yd closure levee at New Madrid, Missouri, speeded production with five 15-yd C Tournahoppers. Loaded in 70 seconds by a 31/2-yd

dragline, these mobile Bottom-Dumps averaged 10 pay yds of gumbo per load. On a typical 3000-ft cycle, each Tournahopper delivered 75 pay yds per 50-minute hour. "Clamshell-type" gates wiped clean, eliminated haulback of gummed-in muddy material.



"GREAT SAVINGS ON UPKEEP"—Near Kenogami, Ontario, Tournatractor with 18-yd scraper (left) and three 13 to 16-yd C Tournapulls are "doing an excellent job, giving great savings on mechanical upkeep costs," according to Owner C. V. Caswell. On typical 21/2-mi cycle, the 4 units moved 5,000 pay yds of blow sand every 12-hr shift. Job is an 800,000 yd relocation of Hwy 11 northeast of Lake Superior.



OPENS JUNGLE — Despite tropic heat of Gold Coast, Africa, this Tournatractor never failed. "Building jungle roads, unit does in 2 wks what once took 6 months by hand," writes Owner Hauri.



741 PAY YDS HOURLY—To speed an 800,000 yd logging road for J. Neils Lumber Co near Libby, Montana, three 14-yd Tournapulls, pushed by a Tournatractor, placed 741 pay yds hourly on a 300-ft haul. Load time for 9½ pay yds ran 35 to 50 seconds in alluvial sand, about 45 seconds in tightly-packed gravel. Spread took 10 to 30 seconds for both materials.



By providing the equivalent of an infinite number of gear ratios, Tournatractor's heavy-duty torque converter gives higher engine efficiency with minimum fuel and maintenance costs. For details on this and other units write R. G. LeTOURNEAU INC, Peoria, III.



PLASTIC WELDING HELMETS-

Four helmets in the No. 700 Series are made of one-piece compression-molded plastic composed of thermosetting Fiberglas reinforced with polyester resins. Their seamless construction makes them extra strong, moisture proof and resistant to high heat. AO's No. 3 headgear is standard on the No. 700 Series, and the smooth plastic surface permits easy washing or sterilizing. Also standard is an S-type, four-position helmet stop with a steel spring that engages a pin to speed adjustment for quick individual fit. Of the four

helmets, No. 702-3-C has an insulated steel glass holder and No. 700-3-C has a plastic glass holder, both with Filterweld plate and clear cover plate. Available on special order only are No. 704-3-C with plastic lift-front glass holder and No. 705-3-C with insulated Dowmetal lift-front glass holder.—American Optical Co., Southbridge, Mass.

ONE-HAND STAPLER-The T-50 gun tacker shoots patented wedgepointed wire staples up to 9/16-in. leg length and is small enough to fit the contour of the hand for comfortable use. It has a patented nonclogging mechanism that prevents jamming or clogging and permits only one staple at a time to be ejected from the staple track. There are several advantages of staple-tacking with the new T-50, according to the manufacturer. It loads 125 staples for fast, continuous tacking and onehand operation permits freedom of the other hand to hold material. Of all-steel construction and all-chrome finish, the T-50 handles Arrow staples in three sizes up to 9/16-in. leg length .- Arrow Fastener Co., Inc., 1 Junius St., Brooklyn 12, N. Y.

HOLLOW BOLT HEATER—Just as structural steel beams are fastened together securely by the contraction of hot rivets as they cool, heated holding bolts on heavy equipment can be turned up tighter. Then, as the bolts cool, flanges are drawn together to make leak-proof joints. Greater bolt stressing is now possible in large hollow holding bolts through the use of a new Corox bolt heater. The heater is supplied in ratings from 1,000 to 6,200 w at 120 v. Various heater element sizes permit installation of bolts 1 to 3 ft long and in hole diameters from ½ to 1 in. Westinghouse Electric Corp., Box 2099, Pittsburgh 30, Pa.

CELLAR DRAINER-This new submersible cellar drainer contains no floats for adjustment. The motor starts when water level raises the stainless steel motor case. The automatic switch is sealed inside this case and the entire unit can be fully submerged without damaging the motor. The motor is 1/3 hp, 115 v, 60 cycle, 1,750 rpm, split phase. It has two sealed lubricated bearings. Overload protection with automatic reset protects the motor against improper voltage or overload. Pipe connections are 11/4 in. The unit is 16 in. high and will fit into an 11-in. sump. The unit ranges in capacity from 1,200 gph against a 22-ft head to 3,000 gph against a 5-ft head. Shipping weight is 44 lb.-The Deming Co., Salem, Ohio



They're Here!

GREATEST FORD TRUCKS EVER BUILT!

For faster handling on any job, Ford Trucks have new, shorter turning. New, wide-track, setback front axle provides sharper turning angle—easier maneuvering and parking.



Fifty Years Forward on the American Road!



Deluxe cab illustrated.

Completely New for '53 FORD ECONOMY TRUCKS

NEW TIMESAVING FEATURES GET JOBS DONE FAST!

Ford Economy Trucks for '53 are completely new from the tires up! New cabs, new chassis, new power. new transmissions . . . every inch specifically designed to provide fast, economical transportation. New Ford Truck timesaving features GET JOBS DONE FAST . . . at still lower cost per mile!

NEW "DRIVERIZED" CABS

cut driver fatigue!



New one-piece curved windshield, 55% bigger! Wider seat, with new shock absorber. Larger door opening, pushbutton handles.

NEW LOW-FRICTION POWER!

Choice of 5 engines . . . V-8 or Six!



Overhead valve, 101-h.p. Cost Clipper Six, 145- and 155-h.p. Cargo King V-8's—cut down on friction power waste, save gasoline. Also, 106-h.p. Truck V-8 and 112-h.p. Big Six.

NEW TRANSMISSIONS . . . widest choice in truck history!



Synchro-Silent transmission on all models at no extra cost. Steering post shift on 3-speed transmissions. New Fordomatic Drive or Overdrive now available on all ½-tonners at extra cost.

4 COMPLETELY NEW LINES

over 190 completely new models!

9 Conventional F-Series. Up to 27,000 lbs. G.V.W.; 55,000 lbs. G.C.W. Pick-up, Panel, Express, Stake bodies.
4 Cab Forward C-Series. Up to 23,000

lbs. G.V.W. Up to 48,000 G.C.W.

2 Parcel Delivery P-Series. Bodies up to 12½ ft. Up to 14,000 lbs. G.V.W.

4 School Bus B-Series. For up to 60-pass. bodies. Up to 20,000 lbs. G.V.W.

FREE! MAIL THIS COUPON NOW!

FORD Division of FORD MOTOR COMPANY P.O. Box 658, Dearborn, Michigan Please send me without charge or obligation, complete details on new Ford Economy Trucks for '53 FULL LINE HEAVY-DUTY MODELS BIG JOB MODELS BIG JOB MODELS CAB FORWARD MODELS

 —lay it down like the carpet at

a wedding

BUTLER

Roadbuilders





Trucks never wait at a BUTLER Road-builders Plant. Each driver's turn is right now — the instant he rolls up for a batch.

And that means costly pavers and the men never wait either; if anything, trucks are ahead of the best efforts of a well trained dual drum crew.

> And BUTLER batching is not only fast, it's accurate to a split-pound.

That is why inspectors like to find a BUTLER PLANT on jobs they must watch.

Contractors prefer BUTLER, too. They know that costs will stay safely on the sunny side and BUTLER "ahead-of-schedule" production will more than compensate for the rainy days.

So, lay that slab down like the white carpet at a church wedding. And smile at the profit a BUTLER Roadbuilder Plant will bring you when the job is finished.

BUTLER BIN has a special Bulletin on BUTLER Roadbuilders Plants. It's yours without charge on request. Just write for Bulletin 205.

BUTLER BIN COMPANY

949 BLACKSTONE AVENUE

WAUKESHA, WISCONSIN

NEW EQUIPMENT BRIEFS

A 400-amp insulated electrode holder called the Cooltong will handle rods from 1/8 to 5/16 in. and is guaranteed to stay cool during welding cycles. Holder handle is perforated with large ventilating holes, and manufacturer claims it's unbreakable. Write Lincoln Electric Co., Cleveland 17, Ohio

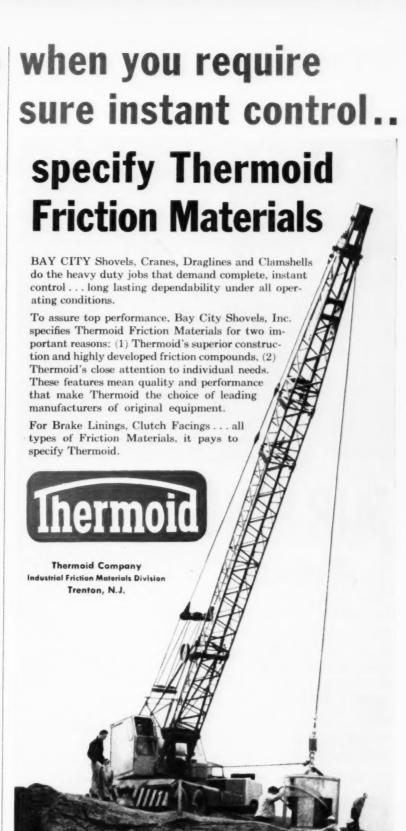
A five-in-one cutting electrode has been announced by All-State Welding Alloys Co., Inc., 249 Ferris Ave., White Plains, N. Y. A 2-to-1 performance is possible, according to the maker, when the new electrode is pitted against other makes in "same heat" tests. Said to be able to cut, chamfer, bevel, pierce or gouge, the rod is applicable on steel, stainless steel, iron, cast iron, copper and copper alloys, nickel or nickel alloys, with either ac or dc current. Available in standard sizes from 3/32 to and including ½ in.

The Thoro-Flare emergency warning signal is attachable to a barricade by a bolt and lock washer. It requires use of a tool for detaching, thus preventing casual theft or loss. It starts to flash instantly when put in upright position but can be turned off by removing the barricade. Neon flasher unit is fired by sealed powerpack unit embodying a mercury switch and electronic flasher. Unit measures 8 in. high, 6 in. long and 31/2 in. wide. Made by The Emarco Corp., P. O. Box 615, Far Hills Station, Dayton 9, Ohio, the flasher weighs only 6 lb.

A new type grease seal for Caterpillar D-4, D-6, D-7 and D-8 tractors and International TD-24's is available from Sure-Seal Equipment Co., 2424 E. Burnside St., Portland, Ore Two neoprene rubber seals are used in place of the usual single seal.

A truck and trailer wheel block, made of cast alloy steel, is designed for holding heavy vehicles and loads. The Casteel Safety Wheel Block has cast-in holes on the bottom plate to permit nailing to freight car or truck floors, or shipping platforms. Gripper teeth on the bottom plate prevent creeping or slipping. Made by Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.

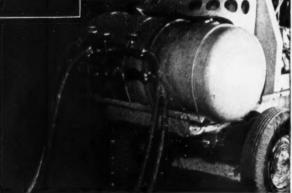
An adjustable conveyor, called the Expand-O-Veyor, can be set high or low, long or short, to suit requirements. A small unit adjusts from 11 to 18 ft in length; a larger unit, from 15 to 25 ft. On truck loadings, the unit can be moved while the haul unit stands still. It's available from The Oliver Corp., A. B. Farquhar Div., 142 N. Duke St., York. Pa.





THIS Versatile Coupling

while used primarily for air-operated tools in field and factory, is equally efficient for water, oil and spray service. Illustration shows hose end and female I.P.T. end connected.



"AIR KING" Quick-Acting Universal HOSE COUPLING

The "AIR KING" will reduce operating costs on every job requiring quick connection. Heads are locked by simply pressing together and giving one a quarter-turn. These locking heads are identical for all sizes of hose or threaded ends, permitting the coupling of any two sizes of hose, or hose and pipe, within the "AIR KING" size range. Equipped with patented safety locking device. Available in bronze or rustproofed malleable iron, in sizes up to 1".





Male I.P.T. End

Stocked by Manufacturers and Distributors of Industrial Rubber Products

DIXON Valve & Coupling Co.

GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA. BRANCHES—CHICAGO
BIRMINGHAM & LOS ANGELES & HOUSTON + DIXON VALVE & COUPLING CO., LTD., TORONTO
ASSOCIATE COMPANIES, BUCK 15 ON COMPANY INC., QUARRYVILLE PA., PRECISION DRAWN STEEL COMPANY, CAMBEN, N.J.

Magnus Waterless Hand Cleaner, although manufactured for use where water is not conveniently available, is water-soluble. It's said to rinse thoroughly, leaving no oily residue. It removes grease, tar, inks and the like; is a white, stiff jell with generous amount of Lanolin; contains no alkalis, hence is not irritating to the skin. It's manufactured by Magnus Chemical Co., Inc., Dept CM&E, Garwood, N.J.

Furane resin surface coating Type X-5 is the most recent of a long line. It shows remarkable properties of adhesion to various metal surfaces, including alloys of copper, steel, aluminum or magnesium. It makes these surfaces more receptive to adhesive bonding. Not only does the film possess acid and alkali resistance, but resistance to solvents and boiling aqueous solutions.

A totally enclosed motor developed by U. S. Electrical Motors Inc., Box 2058, Terminal Annex, Los Angeles 54, Calif., and designated as Type SS, is designed for service where dampness, dust, fire hazards and corrosive fumes prevail. It's self-cooling and comes in sizes from 1/3 to 2 hp. Lubriflush bearings force new grease through the bearings for a thorough purge of the old grease.

Manco Mfg. Co., Bradley, Ill. has added another Riveteer Unit, Model R-20-185 to its expanding line. It can handle rivets up to $4\frac{1}{2}x\frac{1}{2}$ in. and is powered by a 10,000-psi hydraulic pump, operating from a 2-hp, 220/440-v, 3-phase motor. Riveting unit weighs 65 lb; pump unit, 400 lb.

Dennis No. 8500 plastic sealant is a general purpose sealing compound recommended for almost any purpose where superior glazing, calking and waterproofing compound is required. Dennis Chemical Co., 2701 Papin St., St. Louis 3, Mo. says it's non-drying, non-hardening, non-staining and non-contaminating.

A type of steam hose that combines wire braided and glass cord construction has been developed by Quaker Rubber Corp., Div. of H. K. Porter Co., Inc., Tacony and Comly Sts., Philadelphia 24, Pa. Called Ironsides Steam Hose, it's designed for working pressures up to 200 psi and ranges in inner diameter size from ½ to 1¼ in.

GoCorp of Adrian, Mich. introduces a 75-cu ft batch mixer to meet the need for additional capacity for lightweight block producers. The new mixer is said to make it possible to give lightweight agregrates extra mixing time while keeping production at full capacity. Powered by a 50-hp electric motor, it has airoperated discharge door and Mixtimer

DIGGING — Contractor Del Balso of Branx, N.Y., keeps his Model HM profitably busy. Here it's lowering grade for a new pavement . . . easily cutting the many tree roots encountered.

LOADING — Model HM doing a fast loading job on a dirt pile for Davis Construction Corp., Long Island. Fast reverse speeds and power boosted steering give this "PAYLOADER" high production on loading work.



BACKFILLING—A very popular "PAYLOADER" use is trench work — loading excess dirt and backfilling the trench. Tires do not injure pavements and the bucket can backfill over the top of sheeting or other obstructions.





SPREADING — On the Penn-Lincoln Parkway near Pittsburgh, Frank Mashuda's Model HM spreads shoulder material while concrete pouring goes on beside it. Good tire flotation and maneuverability is an important HM asset here.

MASTER OF MANY JOBS

Big 4 wheel drive "PAYLOADER" tractor-shovels are capable and versatile — able to do many jobs and drive quickly from one job to another at speeds of 17 m.p.h. Big tires, plus 4-wheel-drive, gives them catlike traction and flotation to surmount poor ground conditions. Power boosted rear wheel steer makes them maneuverable and easy to handle . . . 4 gear ratios in each direction provide the right speeds to fit each task.

The powerful 1½ cu. yd. "PAYLOADER" is the flagship of the "PAYLOADER" fleet, which includes 7 sizes down to 12 cu. ft. bucket capacity. Also a choice of 4 wheel drive, rear wheel drive and

front wheel drive to best fit your needs. Your Hough Distributor, one of 200 in the U.S. and Canada, is ready to serve you *right* — with extensive application experience and complete parts and service facilities. The Frank G. Hough Co., 706 Sunnyside Ave., Libertyville, Ill.

WRITE for full information on any of the "PAYLOADER" models: FourWheel Drive HM — 1½ yd. and HR — 1 yd.; Rear Wheel Drive Models HY — 1½ yd., HF — ¾ yd., HE — ½ yd.; Front wheel drive Models HAH — 15 cu. ft., HA — 12 cu. ft.









85 N. Lotus Ave., Pasadena 8, California

Cut High Labor Costs

Make Big Savings You Don't Have to Buy New Forms for Every Job

SPEED FORMS can be set up, stripped, cleaned, moved and reused in far less time than wood. Lightweight, easy to handle. No heavy bracing needed. No gadgets or special fastenings-

Units go together with wedge clips.

Made of Steel—Good for reuse again and again on job after job indefinitely without repair. Reduce material costs way below wood-Many

records of 400-500 and more uses.



IRVINGTON FORM AND TANK CORP. 20 VESEY ST., NEW YORK 7, N. Y

Custom-built tube files for storing maps, plans, tracings, etc., up to 60 in. long can be banded together in any desired number and fitted to an entire small safe or in a section of a larger safe for fireproof storage. The entire bank of tubes tilts forward for easy insertion or withdrawal of any one, and all can be indexed easily, according to Scott-Rice Co., 610 S. Main St., Tulsa 3, Okla.

A hoist tower has been added to the Bil-Jax scaffolding line. Suitable for general contracting use, the new tower offers ease of handling, a built-in ladder and ability to carry a 4-ton load. Bil-Jax, Inc., Archbold, Ohio, claims that it can be used for sidewalk bridging or scaffolding when not in use as a tower.

Latest in the line of Snap-Tite couplers is one for 8-in. pipe. It has standard flanged connections, and a valve in the coupler body automatically shuts off liquid flow when the nipple is removed. Made by Snap-Tite Inc., Union City, Pa., they're available in forged steel, bronze or almost any type of material in sizes from 1/4 to 8 in.

Non - inflammable plastic cable clamps are available from Holub Industries Inc., Sycamore, Ill. Made of Saran, a strong thermoplastic, they offer excellent electrical and thermal properties. They're inert to fungicidal attack, resist corrosion or sweating and come in 17 sizes from 1/8 to 11/4 in. inclusive.

Foundation Equipment Corp., 38th Ave. at 10th St., Long Island City 1, N. Y. offers a new wellpoint pumpa 4-in. high-capacity, gas-engine-driven unit. It has the operational features of the company's 6-, 8- and 10-in. units, can be used as a sump pump with a special strainer that keeps out foreign materials.

Plastic-coated work gloves, called Dynagluvs, are liquid-proof and highly resistant to abrasion and abuse. They're made in knitwrist, gauntlet and band-top styles, either fully coated or palm-coated and are available from Granet Corp., Framingham, Mass.

COMING - In July

Construction Methods and Egiupment's special issue devoted to Construction Equipment Maintenance. The theme will be "Productive Maintenance."

WATCH FOR IT!

STATICALLY INDETER-MINATE STRUCTURES

Just Published!

2

Simply and in detail, this book covers the methods of finding deflections of statically determinate beams, rigid frames and trusses, the analysis of statically indeterminate structures by the method beams, rigid frames and trusses, the analysi statically indeterminate structures by the me of consistent deformation, by the three-mon equation, by the slope deflection and mot distribution methods, and by the method of num analogy. By C. K. Wang, Assoc. pref. Civil Eng., Univ. of Colo. 436 pp., 493 illus., \$7.50

MATHEMATICS FOR ENGINEERS

matics the engineer is likely to maties the engineer is likely to meet. from algebraic notation, determinants and linear equations through differential calculus, curve analysis, integration, sumation, etc. This revised edition contains much added material, including chapters on Differential Equations and Dimensional Analysis with emphasis on the Buckingham Pi theorem. Braymond and Richard Dull, Webster-Chicago Corp., 3rd Ed., 822 pp., 671 illus., \$8.00

MATERIALS HANDBOOK

Seventh Edition presents the most important facts relating to more than \$800 materials to enable you to make comparison, avoid checking many sources, and quickly get a working knowledge of the materials best suited for a particular purpose. Gives detailed information on characteristics, comparative data, sources, substitutes, adulterants, and uses for each material includes a section on important ecotion on important eco-

tion on important nomic geography. George S. Brady. George S. Brady. / Ed., 879 pp., 360 illus. 7th

WOOD **PRESERVATION**

Just Published! 2nd Ed.

Up-to-date, complete book on methods and materials for prolonging the life of wood or improxing its usefulness by treatment with chemicals or by sanitary precautions. Covers entiredurability and treatability of wood. Describes foung and insects that destroy wood; describes common wood preservatives, shows how to evaluate them; how to treat wood with them; gives freproxing methods, etc. By George M. Hunt, Former Director U. S. Forests Products Laboratory, and George A. Garratt. Dean. Yale School of Forestry. 2nd Ed., 445 pp., 112 illus. \$7.00

CEE BOOKS TO DAYS FREE

DEE	BOOI	V2 I	0 0	413	FREE
McGraw-H	ill Book	Co.,	330 W.	42 S	., NYC 3
Send me bamination of nook(s) I bunwanted bif you remalege)	m appro ceep, plu look(s) 1	val. In is few postpai	10 days	1 wi livery.	Il remit for and return for deliver
□ Wang -	Statically	Indete	minate		
	Structur	es \$7	50		
Dull &	Dull Ma	ath. for	Eng.	\$8.00	
Brady	Materials	Hndb	k 89 0	0.	
Hunt &	Garratt	Wood	Preserva	ation	\$7.00
(Print) Name					
Address					
City			Zone	Sta	to
Company					

This offer applies to U.S. only

- CM 4

Position



BRAND

NEW,TOO!

Do YOU Want To CUT WIRE ROPE COSTS?

• How long is it since you made a real check of the results you get from the wire rope used on your equipment? If you aren't sure that every rope is giving full value in service life, send for a free copy of this brand new wire rope recommendation book. It covers the equipment used by general contractors and gives you a good yard-stick to go by.

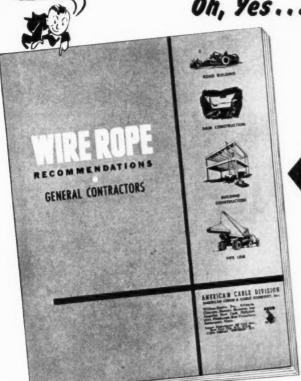
This American Cable book is simple to understand, and it's right to the point. It has alphabetical listings by machines and uses. It gives a clear and complete recommendation of the best rope for longest life and lowest cost on each machine or use. It is illustrated with big action pictures of many different machines so you can easily identify most uses.

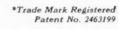
Oh, Yes... DUALOC* Boom Cables

• Here's something very important to all operators of cranes, drag lines, and shovels. This book tells you about the greatest improvement ever made in boom cables—DUALOC. It shows how they work, and why they last longer.

You Need This Book

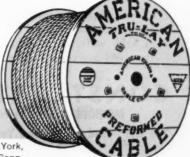
This new "Wire Rope Recommendations for General Contractors" will save you money, and that's sure important in the contracting business today. Write to our Wilkes-Barre, Pa., office for your free copy at once, or pick up one from your nearby AMERICAN CABLE distributor.







Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.





FLEXCO

BELT **FASTENERS** RIP PLATES



FOR HEAVY CONVEYOR AND **ELEVATOR** BELTS OF ANY WIDTH

- ★ FLEXCO Fasteners make tight butt joints of great strength and durability.
- Trough naturally, operate smoothly through take-up pulleys.
- Distribute pull or tension uniformly.
- Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
- ★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.



Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO., 4699 Lexington St., Chicago 44, Ill.

READY FOR YOU... REPRINTS ON

EARTHMOVING

The first comprehensive book on this important subject ever published

The series of articles entitled "Earthmoving ... An Art and a Science", published in Construction Methods and Equipment during 1951 and 1952, has been assembled under one cover to satisfy the scores of requests for such a book. Extra copies are available.

Here are 64 pages of valuable excavating and earthmoving data, prepared by authorities in their field, useful to contractors, estimators, foremen and operators for years to come.

CONSTRUCTION

METHODS AND EQUIPMENT

330 West 42nd Street, New York 36, N. Y.

PRICE 50¢

10 copies

Please remit to reduce our handling costs

New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use.

JAW CRUSHERS-This 7-p bulletin describes in detail with schematic drawings jaws from 10x16 up to 30x42. Specifications and general dimensions are given for various requirements. Write for Bulletin No. 280-Smith Engineering Works, Milwaukee 12. Wis.

CONCRETE FORMING TABLES-A new 4-p folder of tables has the following information: Placing of dirt, joist, or stringers when using manufactured panel forms for 34-in. plywood, and the facing of shores and column clamps for the various needs of concrete form work. Estimators should find the tables exceedingly valuable. Write the Symons Clamp & Mfg. Co., 4249 W. Diversey Ave., Chicago 39, Ill.

CATERPILLAR TRACTOR—Eleven on-the-job photos in this 8-pager show the use of Caterpillar tractive equipment for construction, railroads and municipalities. The folder includes short descriptions of important constructive features. Copies of "Tracks to Profit" may be obtained from Caterpillar Tractor Co., Peoria, Ill.

PERFORATED DRAIN TILE-Folder gives tips on the proper installation of perforated drain tile for basement and foundation drainage, as well as septic tank disposal systems. It includes diagrams of home drainage plans and an effective septic tank disposal system. Write for "Perforated Drain Tile."-E. C. Mi!liken, General Manager, Bowsden Shale Co., Bowsden, Ohio

UTILITY TRUCK BODY-Illustrations show the uses of this concretecarrying truck body described in a 4-p folder. Body is designed for hauling centrally mixed concrete. Write for Form L-116, Manufacturing Div., Maxon Construction Co., Inc., 131 N. Ludlow St., Dayton 2, Ohio.

AIR CONTROL VALVES-A 12pager with 3-color schematic diagrams of the three fundamental types of air-control valves has explanations and descriptions of interest to engineers who need directoperated, remote controls, for integral pilot-operated air-power valves. Bulletin No. 101A.-Ross Operating Valve Co., 120 E. Golden Gate Ave., Detroit 3, Mich.



Photo Courtesy Mixermobile Manufacturers, Portland, Oregon

180 horsepowered Scoopmobile loads 4319 yards of wet sand in 31 hours!

No stranger to hard work, this loader. Each time it bends down, a hydraulically operated loading bucket picks up, carries and loads as much as two cubic yards of dirt, rock or sand. Four-wheel planetary gear drive and four-wheel power steering are combined for plenty of power, amazing speed and maneuverability. Five-speed transmission enables top performance under any conditions of terrain.

Like others, this manufacturer powers with Chrysler because he knows every Chrysler Engine is engineered for long-lived, topprofit performance. He selected the husky Model 20 Chrysler V-8 Industrial Engine. Result: more work in less time.

Chrysler can equip its 180 horsepower Model 20, or any of its Industrial Engines, to meet special requirements. For example, Chrysler can supply engines with propane or natural-gas burning carburetor, gýrol Fluid Coupling or torque converter.

Chrysler Industrial Power is not expensive. Production-line methods adapted to specialized engine building provide a custombuilt engine at mass-production prices. See a Chrysler Industrial Engine Dealer or write: Department 94, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.



CHRYSLER Industrial Engines

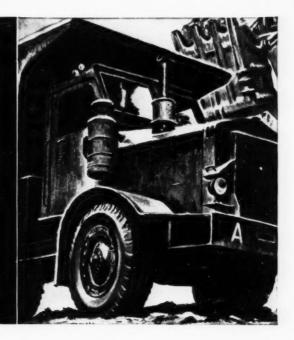
HORSEPOWER



WITH A PEDIGREE



You Can Extend Life of ENGINES, TRANSMISSIONS and DIFFERENTIALS



With Allison Torqmatic Drives

Based on user records, heavy-duty trucks equipped with Allison Toromatic Converters and Transmissions last longer and cost less to operate than trucks with mechanical drives.

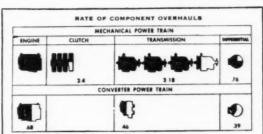
Records show that Allison Toromatic Drives boost truck availability, enabling operators to improve their schedules and, thus, they can do more business.

Trucks — and other heavy equipment — with Allison Toromatic Drives use the flexibility of the converter to start heavy loads and make shock-free gear shifts at full power. The Allison Toromatic Drives automatically balance engine power with the load requirement. This automatic operation makes the driver's job easier and reduces wear on the whole unit—thus cutting maintenance cost.

You are interested! Attach this advertisement to your letterhead and send it to Allison. You will receive detailed evidence on what these Allison TORQMATIC DRIVES will do for you.

And the next time you're ordering heavy-duty equipment, you'll ask your dealer or manufacturer for units with Allison Toromatic Drives.

ALLISON Division of GENERAL MOTORS Box 894TT, Indianapolis 6, Indiana



Rate of clutch, transmission and differential overhauls per engine overhaul for trucks equipped with mechanical drive and Allison TORGMATIC DRIVES. It shows that trucks with Allison TORGMATIC DRIVES have longer engine life, longer transmission life, and longer differential life.

MATCHED UNITS BUILT BY ONE MANUFACTURER



DOUBLE the POWER

and you double the use

of your FORD Tractor



FUNK
CONVERSION

FUNK Products include:

Straight Power
Take-Off Clutches

Right Angle Take-Offs

Front End Take-Offs

Gear Reduction Units and Heavy-Duty Clutches



You can do unbelievable jobs with ease when you equip your Ford Tractor with a regular 100 h.p. V-8 or 95 h.p. 6-cylinder Ford engine, on your old or new tractor, with our change-over kit. Increases operation time, and enables tractor to handle heavier equipment and accessories. Conversion costs about 1/3 as much as most tractors of same power. Install it yourself or have your dealer do it. Write TODAY for specifications and prices.

FUNK AIRCRAFT CO.

3303 AIRPORT DRIVE

COFFEYVILLE, KANSAS



SAFETY EQUIPMENT — A most comprehensive catalog on safety equipment is available. It contains 144 pp with illustrations and descriptions of all kinds of face shields, welding helmets, skin-coating liquids and creams, safety clothing and machine guards. It is Catalog No. 100 and is available from The Boyer-Campbell Co., 6540 St. Antoine St., Detroit 2, Mich.

WELDING ALUMINUM — Two sheets are filled with technical information for welding and soldering aluminum or zinc-base metal or any alloy thereof with a special alloy welding rod. Write for Chemalloy Welding Information, Sightmaster Corp., 111 Cedar St., New Rochelle, N. Y.

SELF-PRIMING PUMP—Performance tables and engineering information are contained in these descriptive folders illustrating self-priming centrifugal contractors' pumps, available from Gorman Rupp Co., Mansfield, Ohio

CALCIUM CHLORIDE IN CONCRETE—A review of all the significant literature on the subject of calcium chloride in concrete is available in this 62-p bibliography recently prepared by the Highway Research Board. A complete reference and a source of information relating to the effect of calcium chloride on the properties of portland cement and concrete are included. Ask for Bibliography 13.—Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C.

HOLLOW CORE FLOOR SLABS—For adherents of either radiant heating panels or of circulated warm air this 6-p folder offers 2-color details and complete descriptions of hollow core, precast, long-span concrete floor and roof slabs. The hollow core allows the circulation of warm air, or cold air in summer, through a floor to baseboard plenums. — The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton, Ohio

FRICTION CLUTCHES AND CLUTCH COUPLINGS—A 4-p folder of schematic drawings and dimensional tables on the Beyl friction clutch enables the engineer to select the right clutch or coupling for any requirement. Ask for Folder 2347.—Link-Belt Co., 307 N. Michigan Ave., Chicago 1, III.

WHERE TO PUY

STOP that WATER

With FORMULA NO. 640, a clear liquid which penetrates 1" plus in concrete, brick, stucco, plantar, etc. Seals out water, dirt. Holds 20' head. Use outside and in Preserves all absorbent materials. Said 14 years. Quick, economical, sure. 33 in 55's. Free sample. See Sweet's.

NOW a light-weight tool for a man size job!



Here's a compact, easy-handling Breaker that weighs only 41 pounds—yet has ample, hard-hitting power for a multitude of strenuous demolition jobs. The PB-59—most powerful machine in its weight class—will break up light concrete and tear out masonry blocks and brick work with ease. Its small size and light weight make the PB-59 easier and safer to handle on scaffolding jobs. And its low air consumption makes it particularly popular with the owners of small compressors.

With a complete line of standard accessories, including digging chisels, clay spades and tampers, the PB-59 demolition tool can also be used for loosening hard earth, as well as repacking and tamping the replaced material after the job is done.

Ask your I-R representative for complete information on this time-saving light-weight Breaker. Or send for your free copy of Bulletin No. 4127, on the complete line of Ingersoll-Rand paving breakers.



SPECIFICATIONS:

ROCK DRILLS . COMPRESSORS . AIR TOOLS . CENTRIFUGAL PUMPS . TURBO BLOWERS . CONDENSERS . DIESEL AND GAS ENGINEE



PLAY IT SAFE! BUILD PROFITABLY with SAFWAY Tubular Steel Scaffolding -first in the field!

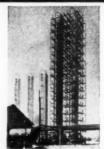
MAKING THE MOST OUT OF TUBULAR STEEL is standard Safway practice. That's why you get substantial savings in operating costs with Safway scaffolding... a fact well supported by experience of builders and contractors everywhere. It'll pay you to investigate the advantages of America's safest and most popular scaffolding. Write today for more facts. Or contact one of the 137 Safway dealers near you.

Towers of Webbed Steel

Reaching for the Sky



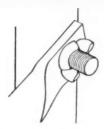
92 miles of tubular high carbon steel go into 50 towers built of Safway acaffolding. Each Safway tower supports 20 tons at the U.S. Navy hangar on the East Coast.



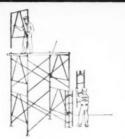
Straddling base equipment, Safway scaffolding reaches high at this Dallas, Texas oil refinery. Safe, strong Safway equipment is a favorite in fabulous Texas oil country.

When Time Is Money

Safety Builds Profits



Light weight Safway end frames are easily handled by one man. You need only a few basic interchangeable members to assemble scaffolds of any shape or height. Two men can easily erect 30 feet of scaffolding in 30 minutes.



Notice how Safway design gains its strength. Trouble-free wing nuts solidly hold carbon steel tubular cross braces to end frames; cross braces pivot on hardened steel. Hi-Shear rivets that really last.



STEEL PRODUCTS

6243 West State St. MILWAUKEE 13, WIS. RENTED and SOLD by distributors everywhere

Advertisers in this Issue

A McGRAW-HILL PUBLICATION

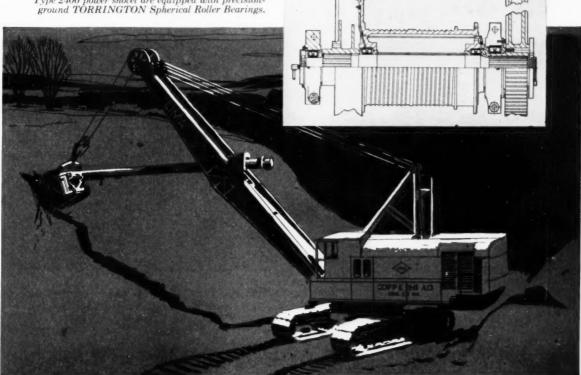




Member of Associated Business Publications and Audit Bureau of Circulations

A	
Acrow, Inc. 82, Adams Mfg. Co., J. D. Albot Steel Co., Inc. All Purpose Spreader Co.	109 140
Allis-Chalmers	
(Tractor Div.)	213
American Brake Shoe Co	34
	25 155
Baker-Roos, Inc.	22
Barber-Greene, Inc. Bay City Shovels, Inc.	16
Bethlehem Steel Co	222
Blaw-Knox Company	186
Baker-Roos, Inc. Barber-Greene, Inc. Bay City Shovels, Inc. Bethlehem Steel Co. Black & Decker Mfg. Co., The Black hawk Mfg. Co. Blaw-Knox Company (Blaw-Knox Equipment Div.) 116, (Foote Construction Equip. Div.)	117
(Foote Construction Equip. Div.) Borden & Rilev Paper Co. (Kern Drawing Instrument Div.) Borne, Scrymser Co. Bucyrus-Erie Co. 42. Buda Company 2nd Co Bullard Co., E. D. Butler Bin Co.	194
Bucyrus-Erie Co	119 ver
Bullard Co., E. D. Butler Bin Co.	208
C	
Carver Pump Co. Caterpillar Tractor Co	$\frac{156}{185}$
Chain Belt Co	38 145
Chrysler, Inc.	144
(Industrial Engine Div.) Cities Service Oil Co.	215 135
Cleveland Trencher Co., The Clipper Mfg. Co	173
Construction Machinery Co's.	158
Construction Machinery Co's. Crucible Steel Co. of America. Cummins Engine Co., Inc.	98
	57
Dixon Valve & Coupling Co	37 210 11
E	
Electric Tamper & Equipment Co. (Jackson Vibrators, Inc.) 6, Ellicott Machine Corp. Euclid Road Machinery Co., The	7 41
F	
Fiske Brothers Refg. Co. (Lubriplate Div.) (Lubriplate Div.) (Flevible Steel Lacing Co	84 14
Blaw-Knox Co.	48
Foundation Equipment Corp	88
G	18
Galion Allsteel Body Co., The	49
(Findlay Division)	75 21
Gardner-Denver Co	1
Gorman-Rupp Co., The	68
Galion Allsteel Body Co., The Gar Wood Industries, Inc. (Findlay Division). 74, (St. Paul Hydraulic Hoist). 120, 1 Gardner-Denver Co. 1 Goodrich Co., The B. F. (Industrial Products Div.) (Truck Tire Div.) Gorman-Rupp Co., The Grace Mfg. Co., W. E. Gradall Div., The Warner & Swasey Co., 1) Griffin Wellpoint Co.	58 58 96
Hamischfager Corn	
(Diesel Div.) (Large Excavator Div.). 1: Haynes Products Co. 2: (Continued on page 223)	16
(Continued on page 223)	

For smooth, low-maintenance service under toughest operating conditions, both front and rear hoist shafts on the 479,000-pound LIMA Type 2400 power shovel are equipped with precision ground TORRINGTON Spherical Roller Bearings



Friction defeated!

The bite of the bucket into solid earth may cause deflection, but TORRINGTON Spherical Roller Bearings, self-aligning and with high capacity, keep right on rolling. Power is constant and your shovel stays on the job.

These rugged friction fighters are made from the finest of bearing steels, carefully heat treated for maximum strength, toughness and resistance to wear. Both rollers and races are accurately



Power delivered!

manufactured for geometrical conformity and highest load-bearing capacity at all times. The solid ring, cast-bronze cages are *land-riding*.

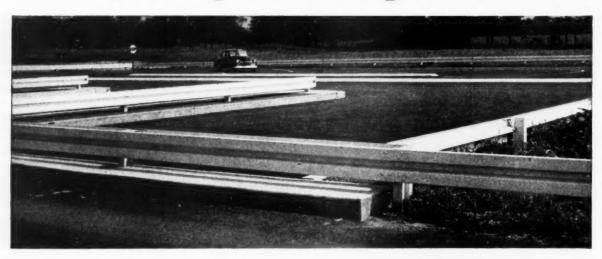
TORRINGTON Spherical Roller Bearings cut operating costs in the toughest of earthmoving and rock-processing applications. Prove it to yourself—specify TORRINGTON.

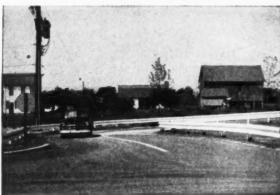
THE TORRINGTON COMPANY
South Bend 21, Ind. Torrington, Conn.

TORRINGTON SPHERICAL BEARINGS

Spherical Roller . Tapered Roller . Straight Roller . Needle . Ball . Needle Rollers

Test course for new drivers has Safety-Beam protection







WHAT CANDIDATE FACES—New driving course can be completed in 4½ wheel-twisting minutes. With a state trooper at his side, the driver must negotiate an upgrade figure 8 (above) in either second or high gear, make a complete turn in one of the narrow "stalls" (above) without touching the curb or the guard rail, stop and hold the car at an upgrade stop sign (lower left), and make sharp turns (left) unexpectedly banked the wrong way. It's a workout for the troopers, too; up to 400 tests some days.

Bethlehem Safety-Beam Guard Rail—1375 feet of sturdy steel—guides rookie drivers through a new test course at the Pennsylvania State Police barracks near Bethlehem.

The same features that led to the choice of Safety-Beam here have caused highway engineers to specify it for danger spots along many miles of highway. Safety-Beam sections lock together in a continuous beam. Impact is absorbed, not by a single post, but by a number of adjacent posts. One bolt fastens Safety-Beam to any type of post, and unskilled workmen can do the job without special tools.

For complete information about Bethlehem Safety-Beam Guard Rail—and other road steel products listed below—call the nearest Bethlehem sales office, or write to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation, Export Distributor: Bethlehem Steel Export Corporation

STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Guard Rail Guard Rail Posts • Wire Rope and Strand • Pipe Hollow Drill Steel • Spikes • Bolts and Nuts Timber Bridge Hardware • Tie-Rods Sheet- and H-Piling • Fabricated Structural Steel



Page 222 — CONSTRUCTION Methods and Equipment — April 1953

Advertisers Index

(Continued from page 220)	
Heede, Inc., B. M.	. 103
Hein-Werner Corp	143
Heltzel Steel Form & Iron Co., The	. 133
Heede, Inc., B. M. Heil Company, The	. 19
Hough Co., The Frank G	. 211
Ingervall-Rand Co	219
Ingersoll-Rand Co. Insley Mfg. Corp. International Harvester Co., Inc. (Industrial Power Div.)	. 140
International Harvester Co., Inc.	Q 10
(Motor Truck Div.)	152
(Motor Truck Div.) Iowa Mfg. Co	129
•	
Jackson Vibrators, Inc.	6. 5
Jackson Vibrators, Inc	, 145
Decord Steel Cor Co	100
Pressed Steel Car Co	. 31
L'	
Kawneer Co., The Koehring Co. Kohler Co. Kwik-Mix Co.	. 36
Kohler Co.	164
Kwik-Mix Co	0, 31
Laclede Steel Co. LaCrosse Trailer Corp. Laughlin Co., The Thomas. Lauson Co., The Lebus Rotary Tool Works, Inc. Leschen & Sons Rope Co., A. LeTourneau, Inc., R. G. 201, 20: Light Products, Inc. Lincoln Electric Co., The	142
Laughlin Co., The Thomas	. 16:
Lebus Rotary Tool Works, Inc.	140
Leschen & Sons Rope Co., A	28
Light Products, Inc	, 20:
Lincoln Electric Co., The	. 16
Link-Belt Speeder Corp. Lone Star Cement Co. Lubriplate Div., Fiske Bros. Refg. Co	. 7
Lubriplate Div., Fiske Bros. Refg. Co	. 8
McGraw-Hill Book Co., The McKiernan-Terry Corp. Mack Trucks Macwhyte Co. Madsen Iron Works, Inc. Malsbury Mfg. Co. Manhattan Rubber Division Marlow Pumps Marvel Engineering Co. Manhatter Corp. Marvel Equipment Corp. Master Builders Co. Michigan Power Shovel Co. Miller Research Engineers Minneapolis-Moline Co. Mixermohile Distributors, Inc. Moretrench Corp. Murphy Diesel Co.	
McGraw-Hill Book Co., The	212
Mack Trucks	. 19
Macwhyte Co. Madsen Iron Works, Inc.	. 6
Malsbury Mfg. Co.	170
Manhattan Rubber Division	9 8
Marvel Engineering Co.	9
Master Builders Co	. 180
Michigan Power Shovel Co	. 200
Minneapolis-Moline Co.	. 164
Mixermobile Distributors, Inc.	. 40
Murphy Diesel Co	171
N	
North America, Indemnity Insurance Co. o Northwest Engineering Co.	f 83
O	. !
Oliver Corp., The	
Oliver Corp., The (Industrial Division) Osgood-General Co. Owen Bucket Co.	2, :
Owen Bucket Co	. 24
	130
	. 160
	200
	200
Pacific Car & Foundry Co. Paris Mfg. Co. Parsons Co. Parsons Co., Inc., The	20:
Perific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Parsons Co. Patent Scaffolding Co., Inc., The	20: 16: 15:
Pacific Car & Foundry Co. Paris Mfg. Co. Parsons Co. Parsons Co. Parent Scaffolding Co., Inc., The	20: 16: 15: 11:
Pacific Car & Foundry Co. Paris Mfg. Co. Parsons Co. Parsons Co., Inc., The	. 112
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	. 113
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	. 188
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	. 112
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	. 112
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Parent Scaffolding Co., Inc., The. Parent Scaffolding Co., Inc., The. Perfection Steel Body Co., The. Phillips Petroleum Co. Phillips Petroleum Co. Prairie Schooner, Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.)	. 112 . 188 . 153 . 21
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Parsons Co. Patent Scaffolding Co., Inc., The 149 Perfection Steel Body Co., The. Phillips Petroleum Co. Powder Power Tool Corp. Prairie Schooner, Inc. Pressed Steel Car Co., Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Raybestos-Manhattan, Inc. Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.) Reckwall Mfg. (Co.	. 112 . 188 . 155 . 21 . 194
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Parent Scaffolding Co., Inc., The	. 112 . 188 . 153 . 21 . 194 . 161 . 181 . 94
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Parent Scaffolding Co., Inc., The	. 112 . 188 . 155 . 21 . 194 . 161 . 181 . 94
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The Perfection Steel Body Co., The. Phillips Petroleum Co. Powder Power Tool Corp. Prairie Schooner, Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Raybestos-Manhattan, Inc. Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Roebling's Sons Corp., John A. Rogers Brothers Corp.	. 112 . 188 . 155 . 21 . 194 . 161 . 181 . 94
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Partent Scaffolding Co., Inc., The	. 112 . 188 . 155 . 21 . 194 . 161 . 181 . 94 . 176
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The Perfection Steel Body Co., The. Phillips Petroleum Co. Powder Power Tool Corp. Prairie Schooner, Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Raybestos-Manhattan, Inc. Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rogers Brothers Corp. S Safway Steel Products, Inc. Sanstorm Mfg. Co. Schield Bantam Co.	. 113 . 188 . 153 . 21 . 194 . 161 . 181 . 94 . 176 . 226 . 198 . 113
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The Perfection Steel Body Co., The. Phillips Petroleum Co. Powder Power Tool Corp. Prairie Schooner, Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Raybestos-Manhattan, Inc. Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rogers Brothers Corp. S Safway Steel Products, Inc. Sanstorm Mfg. Co. Schield Bantam Co.	. 112 . 188 . 155 . 21 . 194 . 161 . 181 . 94 . 176 . 226 . 198 . 113
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The Perfection Steel Body Co., The. Phillips Petroleum Co. Powder Power Tool Corp. Prairie Schooner, Inc. (Jahn Trailer Div.) R Ramset Fasteners, Inc. (Ramset Div.) Raybestos-Manhattan, Inc. Reinhart Co., Inc., Paul (Kern Surveying Instrument Div.) Remington Arms Co., Inc. (Industrial Sales Div.) Rockwell Mfg. Co. (Delta Power Tool Div.) Rogers Brothers Corp. S Safway Steel Products, Inc. Sanstorm Mfg. Co. Schield Bantam Co.	. 112 . 188 . 155 . 21 . 194 . 161 . 181 . 94 . 176 . 226 . 198 . 113
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	112 188 155 21 194 161 181 94 176 226 198 113 204 197 193 113 137 137 137 137 137 137 13
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	112 188 185 21 194 161 181 194 176 176 176 176 176 176 176 176 176 176
Pacific Car & Foundry Co. Paris Mfg. Co. Paris Mfg. Co. Paris Mfg. Co. Patent Scaffolding Co., Inc., The	112 188 155 21 194 161 181 94 176 226 193 193 193 193 193 193 194 195 195 195 195 195 195 195 195 195 195



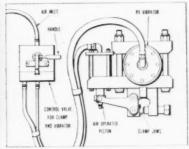
VIBER EXTERNAL VIBRATORS with quick-acting mounting clamps prove very effective in producing unusually smooth concrete tunnel linings.

Form Vibration Speeds Tunnel Lining, Gives Better Concrete, Smoother Finish

Tunnel lining contractors now use VIBER external vibration on movable steel forms to speed production of denser, more uniform concrete and a finished surface almost as perfect as the form itself. This gives maximum capacity with minimum frictional losses in diversion tunnels, storm drains, or other water-carrying structures. Generally one vibrator is clamped on each side of the steel form (which transmits the vibration) at a height

convenient for clamping and moving as work progresses. One USBR project engineer reported transmission of vibration "throughout length of the slope—20 to 25 feet." Vibrators clamped near upper end of the advancing slope may be turned on briefly to help settling while concrete is deposited, after which a vibrating time of ten to forty seconds, depending on conditions, will consolidate it and produce the surface required.





AIR-OPERATED MOUNTING CLAMP and operating valve provide a quick and convenient means of clamping the external vibrator on the form wherever a plate or angle is accessible. Valve (left) turns the vibrator on and off, and operates the air piston to provide a clamping force of 1800 pounds on the adjustable jaws.



UNLOADING BULK CEMENT is one of many other successful applications of external vibration. One large oil well cementing company uses vibration to unload bulk cement in over fifty plants, some handling as much as 500,000 sacks per month. If you handle or package bulk materials, you can probably use external vibration to good advantage.

EXTERNAL VIBRATION is another field in which VIBER has pioneered in its continuing search for new knowledge and techniques in the useful application of vibration. For further information on VIBER'S complete line of internal and external vibrators, write your nearest authorized distributor or VIBER COMPANY, 726 South Flower St., Burbank, California.

SEARCHLIGHT SECTION

EMPLOYMENT . BUSINESS .

OPPORTUNITIES

. EQUIPMENT-USED or RESALE

UNDISPLAYED RATE:

\$1.50 a line, minimum 3 lines. To figure advance payment count 5 average words as a

POSITION WANTED & INDIVIDUAL SELLING OPPORTUNITY WANTED undisplayed advertis-ing rate is one-half of above rate, payable in

PROPOSALS, \$1.50 an insertion.

INFORMATION:

BOX NUMBERS in care of any of our New York, Chicago or San Francisco offices count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED-RATE PER INCH:

The advertising rate is \$13.20 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 78 inch vertically on one column, 3 columns-10 inches

NEW ADVERTISEMENTS: Address N. Y. Office, 330 W. 42 St., N. Y. 36, N. Y. for March issue closing.

UNUSUAL OPPORTUNITY FOR SALES MANAGER

Rapidly growing trailer manufacturer (9600 employees) because of expanding sales requires Sales Manager for Platforms, Carryalls, Dumps and Chassis.

Requirements are capable, aggressive merchandiser with sales ability. Also able to formulate plans and policies and administer. Maximum age 45.

Must have strong experience with Platforms, Carryalls, Dumps and Chassis.

This is exceptional opportunity for right man. Salary commensurate with position. If qualified, please send detailed letter in strictest confidence to

> P-7156, CONSTRUCTION METHODS & EQUIPMENT 330 W. 42 St., New York 36, N. Y.

EXPORT SERVICE REPRESENTATIVE

We are seeking a high-caliber man under thirty-five who wants to service heavy off-the-highway, earthmoving equipment in the export market. He should have experience as a heavy-duty mechanic or other experience or education showing apitude to be trained in the servicing of such equipment. The ability to speak either French or Spanish is necessary since he will travel throughout the world at an excellent salary plus liberal expenses. liberal expenses

If you are this man, please send a complete description of your qualifications to

R.W. 7199. Construction Methods & Equipment 330 W. 42 Street New York 36, N. Y.

OPPORTUNITY

Construction Superintendent Wonted Experienced, aggressive, organizer capable of tak-ing complete charge of multi-million dollar building or bridge project. Must prove successful, profitable accomplishment record, Job located in Midwest, Sal-ary and bonus. State age, experience, salary, and references in letter

P-7281, Construction Methods & Equipment 520 N. Michigan Ave., Chicago 11, III.

MASTER MECHANIC

Complete charge. Old established company. Opening due to death. State experience and qualifications. Salary open.

> P-7335, CONSTRUCTION METHODS & EQUIPMENT

520 N. Michigan Ave., Chicago 11, III.

Superintendents and Project Managers Training Course.

All instruction by mail. Send today for sample lesson and complete details.

GEO E. DEATHERAGE & SON Dept. 105. 411 S. 5th Ave., Lake Worth, Florida

EQUIPMENT--used-surplus

FOR SALE

Crane, truck, Link Belt Speeder Model HC-70, 20 Ton with Waukesha Gas Engines, 80' boom, 40' jib and dolly wheels. One owner. A-1 condi-tion. Asking \$17,500,00. Slade Tractor Co., Inc., 924 Broadway, Albany, N. Y. Phone 3-2189.

Tanks—9 R.R. Car tanks 8000 & 10,000 gal. cap. with coils. L. M. Stanhope, Rosemont, Penna.

WANTED

ANYTHING within reason that is wanted in the field served by Construction Methods & Equipment can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business want they read paper they read.



TOURNAPULL

Model B electric tournapull with Budg engine. One and a half years old. Excellent condition. Price:\$16,000.00

OHIO MACHINERY CO. 6606 Schaaf Rd., Cleveland 9, Ohio

"SEARCHLIGHT"

Opportunity Advertising

-to help you get what you want. to help you sell what you no longer need.

Take Advantage Of It For Every Business Want "Think SEARCHLIGHT FIRST"

Advertisers Index

(Continued from page 223)

(Continued from page 223)	
Standard Dry Wall Products	175
Standard Oil Co. (California)	147
	97
Standard Off Co. (Indiana)	172
	72
Sterling Wheelbarrow Co.	218
Sunstrand Machine Tool Co.	210
Sunstrand Machine 1001 Co.	79
(Hydraulic Div.) Superior Concrete Accessories, Inc. Symons Clamp & Mfg. Co.	
Superior Concrete Accessories, Inc	92
Symons Clamp & Mrg. Co	87
T	
	182
	102
Tel-E-Lect Products, Inc.	995
Templeton, Kenly & Co.	010
Termite Driffs, Inc.	212
Templeton, Kenly & Co. Termite Drills, Inc. Texas Company 14,	900
The Charles The	209
Thew Snovel Co., The	193
Thermoid Co. Thew Shovel Co., The 169. Thurman Machine Co. (Seale Div.) Timken Roller Bearing Co. 4th Co	99
Torrington Co., Inc.	ver
	221
	179
Traylor Engrg. & mig. Co	113
U	
Ulrich Products Corn	177
Union Metal Mfg. Co. The	115
Union Oil Co. (California)	125
Union Wire Rope Co. Unit Crane & Shovel Corp.	108
Unit Crane & Shavel Corn	20
United States Motors Corp	124
United States Steel Co.	23
	123
Chiversal Form Clamp Co.	2 4 17
V	
	223
	134
Vulcan Iron Works	76
w	
Warner & Swasey Co. (Gradall Div.)	168
	118
Waukesha Motor Co.	174
Wayne Crane Div., American	
	198
Wellman Co., The S. K.	17
Westinghouse Electric Corp.	102
(Walding Div.)	35
(Welding Div.)	90
White Mfg Co	124
White Motor Co. The	10
White Mfg. Co. White Motor Co., The Whiteman Mfg. Co.	95
Wickwire Spencer Steel Div.	33
Colorado Fuel & Iron Co	33
Wild Surveying Instruments	12.12
	150
Winslow Engineering Co.	143
Worthington Corp.	
(Construction Equipment Div.)	12
	122
	-
SEADON ICHT SECTION	

SEARCHLIGHT SECTION

(Classified Advertising H. E. Hilty, Mgr.

loymen	t		

Emp

Position Selling	s Vacant Opportunities	Offered			$\frac{224}{224}$
Education	onal				224
					220

Equipment (Used or Surplus New) For Rent 22 For Sale 22

CONSTRUCTION Methods and Equipment

E. E. WEYENETH, Advertising Sales Manager HOWARD T. OLSEN, Business Manager

HOWARD T. OLSEN, Business Manager

Sales Representatives: H. T. Buchanan, 330 W.
42nd St., New York; F. G. Hudson, Knox Bourne and
G. A. Mack, 520 N. Michigan Ave., Chicago; R. E.
Dorland, 68 Post Street, San Francisco, W. C. Bradford, 1510 Hanna Bldg., Cleveland; W. E. Donnell,
Continental Bldg., St. Louis; H. L. Keeler, 1111 Wilshire Blvd., Los Angeles; Robert H. Sidur, 132.
Rhodes-Haverty Bldg., Atlanta; James Cash, First
National Bank Bldg., Dallos. Other Soles Offices.
Architects Bldg., 17th and Sansom Sts., Philadelphia; 738 Oliver Bldg., Pittsburgh; 856 Penobscot
Bldg., Detroit; 350 Park Square Bldg., Boston 16;
95 Farringdon St., Landon, E.C. 4.

You Get More for Your IN SPEED - SAFETY VERSATILITY WITH SIMPLEX Pook! JACKS Pook! JACKS

For every jacking job—pushing, pulling, raising, lowering—you'll find Simplex Jacks give you more for your money... have a wider range of usefulness.

Simplex Ratchet Lowering Jacks are available in capacities from 1½ tons to 35 tons...with full capacity lift on cap or toe! Fast and safe, they operate notch by notch on the downward stroke of the lever—cannot be tripped. Speed trigger—used to drop rack bar to desired position for extra speed—can be operated only when there is no load on Jack. For safety's sake...insist on Simplex.

Protect against cave-ins with

Simplex TRENCH BRACES

Made of steel drop forgings, with ball and socket joints at each end for quick adjustment and tight grip. Simplex Trench Braces are adjustable to any width trench and are sold with or without pipe in all sizes. Protect against cave-ins, injuries and costly re-digging.



Cut friction 88% with Simplex HEAVY DUTY

SCREW JACKS

)

A single large steel pivotal ball, nested in a hardened ball seat under cap, centers the load on Simplex Heavy Duty Screw Jacks and reduces friction by 88%. Ball won't flatten—cap can't slip. 4-way and Ratchet Head Types. Available in 31 models of 10 to 24 ton capacity.

Get more jacking power —longer life with Simplex HYDRAULIC JACKS.

Simplex Hydraulic Jacks are available in eight models with capacities from 3

to 100 tons. These jacks operate vertically or horizontally... have drop-forged steel caps, pressure tested bases, non-sticking, springcontrolled ball valves and high-pressure packing seals of Neoprene. Safety-tested to 50% over rated capacity. Single and double pumps.



Simplex VER - SCREW - HYDRAULIC

TEMPLETON, KENLY
& COMPANY

1008 SOUTH CENTRAL AVENUE

CHICAGO 44, ILLINOIS

WRITE FOR GENERAL CATALOG NO. 53

Methods Memo . . .

CONSTRUCTION

METHODS AND EQUIPMENT



On the Cover ...

Grade is checked right behind a busy Osgood Model 820 backhoe excavating down the middle of the road for a storm sewer in Denver being laid by Thomas Bate and Sons, Inc., well-known contractors of Denver, Dallas and Houston. Rapid expansion of a residential area sparked the \$1,000,000 project, calling for about 8 mi of trenching in soil running from sand to clay mixed with rock. Lock Joint Concrete Pipe, ranging in size from 30 to 72 in., is being laid from 13 to 23 ft deep.

The contractors purchased interchangeable hoe and dragline equipment with their Osgood 820, a 1½-yd machine. For power, they chose a General Motors 6-71 diesel engine equipped with an Allison torque converter for smooth operation and easy handling by the shovel runner.

A LIGHT CABLEWAY, only 325 ft long and operated by an air-powered tugger, was the invention of a resource-ful contractor faced with a difficult materials handling problem on a small job. And it makes an interesting short story (see page 61).

The point we want to make here is that plenty of these things are being done by you contractors—and your fellow construction men are eager to read more about simple and effective ideas on the job. But too often we editors don't find out about them, and they never get into print.

Here is an exception. Contractor Robert Stright sent us the pictures and a letter telling what the job was and how it was handled. You bet we were glad to get the material and, incidentally, Mr. Stright has received some pocket money from us for a bit of spare time work on a subject familiar to him.

Many more of our readers can do the same. You fellows take lots of pictures of your work. Remember to send us some—and get paid for some of your efforts. Just send us the pictures and the facts; we will do the writing.

BID AND ESTIMATE were exactly alike the other day when the Great Lakes Dredge & Dock Co. became low bidder for dredging 19,800 cu yd in the East River, New York. Great Lakes bid \$49,282.08. The Government estimate was \$49,282.08.

A FLIPPED COIN decided the awarding of a contract when bids were opened recently for sewer service connections and underground electrical services in Del Mar, Calif. Smith Construction Co. of Cardiff-by-the-Sea and Drainage Construction Co. and James W. Huntly, of Vistra, submitted identical low bids of \$23,200. Drainage won the toss—and the contract.

small Gasoline Engines, usually single-cylinder and air-cooled, handle numerous chore-power jobs for contractors, and their popularity throughout the nation for hundreds of uses knows no bounds. This is pointed up again by a note from the Briggs & Stratton Corp. in which we are informed that this manufacturer alone produced 1,000,000 of the little engines in 1952.

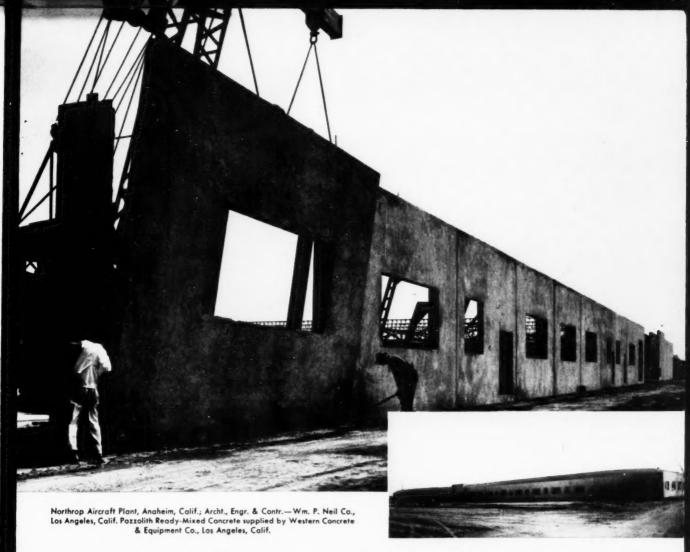
TUNNELING CREWS of Morrison-Knudsen Company of Canada, Ltd., hung up their fourth consecutive world's record tunnel progress in mid-February when they advanced one heading in the 25-ft dia diversion tunnel between Kemano powerhouse and West Tahtsa Lake 286 ft in six days.

These gangs started breaking records last September when they drove 248 ft in six days, then came up with 256- and 274-ft weeks shortly afterwards. The project is part of the Kitimat development, known as Alcan, being built in northwestern British Columbia by the Aluminum Company of Canada, Ltd. Tunneling and underground powerhouse operations were described in CM&E Dec. 1952, p. 72.



YOU ARE LOOKING at good public relations practiced by highway contractor Del W. Fisher, youthful president of the Fisher Contracting Co., Phoenix, Ariz. While widening U. S. Highway 60 along Carrizo Canyon he had to close the road to traffic periodically for blasting and clearing opera-

tions. He stationed flagmen where shade trees were available—cheerful fellows who asked motorists to stretch their legs and enjoy the scenery. A water cooler was placed conveniently for mom, pop and the ever-thirsty kids. This group is making a picnic out of the wait.



POZZOLITH MIXED CONCRETE.... better, faster, in Tilt-Up Construction

Pozzolith Ready-Mixed Concrete is used extensively in tilt-up construction because it helps builders produce units faster and aids in overcoming shrinkage, crazing and cracking.

In tilt-up construction, as in all types of concrete work, Pozzolith Concrete provides these important advantages:

- EASIER PLACEABILITY for lower placing costs
- MINIMIZED SEGREGATION for better appearance
- REDUCED SHRINKAGE for less cracking
- LOWER PERMEABILITY for less "waterproofing" expense
- INCREASED BOND-TO-STEEL for better construction
- GREATER DURABILITY for longer life concrete

Whatever your concrete requirements, Pozzolith will enable you to obtain them better and at lower cost because it reduces the unit water content of the mix.

Write for full information on Pozzolith and the importance of low unit water content.



LEVELAND 3, OHIO

Subsidiary of American-Marietta Company

TORONTO, ONTARIO

New Heiliner scraper travels 25 mph fully loaded . . has 22 TIMKEN® bearings to help

THIS is the latest model 2C500 Heiliner similar to those purchased by the U. S. Army Corps of Engineers in 1952. The unit is equipped with a 13 cubic yard scraper, and features Hydro-Steer, unobstructed visibility, and speeds up to 25 miles per hour-even when loaded!

To insure rugged dependability under the severest kinds of service, Heil uses a total of 22 Timken® bearings in the scraper's vital parts. In the differential, engine shaft and pinion, Timken bearings assure accurate gear meshing, reduce wear. That's because the tapered construction of Timken bearings enables them to take radial and thrust loads in any combination. Shafts are held in positive alignment, a smooth flow of power is insured.

Timken bearings on the scraper wheels are more than a match for heavy shock loads. Line contact between rollers and races of Timken bearings provides load-carrying capacity to spare. Bearings are casehardened to give them tough, shockresistant cores and hard, wear-resistant surfaces. Timken bearings are also used in the scraper's power control unit, and hydraulic pump.

Because they keep housings and shafts concentric, Timken bearings make closures more effective. Lubricant stays in-dirt stays out.

No other bearing can give you all the advantages you get with Timken bearings. Make sure they're in the equipment you build or buy. Always look for the trade-mark "Timken" stampedonevery bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.





TAPERED ROLLER BEARINGS



HARD ON THE OUTSIDE, TOUGH ON THE INSIDE

Rollers and races of Timken bearings are case-carburized to give a hard, wear-resisting surface and a tough, shock-resisting core. Result: longer bearing life.

The Timken Company leads in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. spe-cial analysis Timken steels.